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Hogarth upon Beauty.

HATEVER may be our appreciation of the Art of Hogarth, we shall scarcely be disposed to set forth that its conspicuous characteristic is Beauty. That he was insensible as an artist to feminine beauty cannot be sustained against our recollection of the drummeress at Southwark fair, the rehearsing actress in the barn, and some other illustrations of the simpler phases of loveliness; but he does not indulge enthusiasm for this beauty for its own sake; he merely resorts to it for usefulness as a foil to add force and distinctness to forms and expressions which are either amusingly grotesque, or even, whatever their moral interest, are apt to verge upon the hideous and even the revolting. Hogarth, notwithstanding, must certainly be acquitted of pandering to a morbid or depraved addiction to hideousness; no work of his can be cited as precedent by the purveyors for the appetite of the vulgar and sensational. It is in genuine hatred of cruelty, heartlessness, coarseness, that he takes in hand to exhibit them, and in the best of his works he performs this duty in the true spirit of an artistic censor of manners, of the highest class; he infallibly engages and engrosses interest in all the details of his representation, and carries home the lesson of disgust to the sympathies, at once unweakened by the sense of trifling amusement, and preserved, for the most part, by his wonderful power of self-control, from lapsing into the positive painfulness with which no art, in the proper sense, can exist at all. The thorough Hogarthian enthusiast will, no doubt, demur to the qualification; still there are those of us who will frankly and boldly own that it requires rather an effort to face the uncongenial contingencies which are not to be avoided if we would conscientiously dwell upon and divine all the wit, and humour, and satire, and moral drift of even the Rake's or the Harlot's Progress; the difficulty is greater still, of course, with the "Stages of Cruelty," and the like, which he professedly treated hardly as addressed to hardest natures. It seems, however, only just to the painter that we should recall, by help of the memoirs and fictions of the time, what was the state of contemporary society, high and low, and what was the consequent average tension of the nervous systems which he sought to act upon. In the London of that day, which, as compared with our own, was a country town, if not a village, the mere frequency of public executions of criminals in batches, of either sex, the hardened and those of absolutely tender age together, either found or made the sensibilities of the spectators callous. The behaviour of the mob, not only at Tyburn, but all along the road to it, is described by an English tourist with a horror that he himself, perhaps, might not have been awakened to but for witnessing very contrasted manifestations on a like occasion in an Italian city. The cruel details of the execution of the rebels at Kennington-green, and the public exposure of their mangled remains, seem to have aroused no indignation. It is not necessary to add to this the endurance and familiarity with prize-fights, fatal duels, which were often too much like planned assassinations, cock-fighting, dog-fighting, and the rest, to understand that if the lash of the pictorial moralist was really to make itself felt, it would be absurd to quarrel with the severity with which it was knotted and the vigour of its application. The best preparation for a study of Hogarth is a course of reading of that valuable old *Gentleman's Magazine* in the contemporary issues, which we would fain hope is to be resuscitated in the recently-commenced *Antiquary*. Considering what was the task that Hogarth set himself, we can only marvel that in fulfilling it, he could, beyond all controversy, raise his function to the dignity of fine art, and there for the most part retain it. At the same time, considering also under what limitations beauty in any sense makes appearance in his works, we cannot wonder that when, putting down the pencil to take up a pen for the first time, he announced that the pen would produce an "Analysis of Beauty with a view of fixing the fluctuating ideas of Taste," many more than the merely fastidious connoisseurs were prepared to hoot him down as a presumptuous ignoramus.

Very far, indeed, was Hogarth from an attempt or desire to conciliate the connoisseurs, genuine or pretenders. The pretenders were plentiful and ridiculous enough to justify the satire and some of the contemptuous indignation of Hogarth. Sterne had his fling at the critics who scanned every picture on the look out for "the principle of the pyramid," and raved about "the tint of Titian, the air of Raffaelle, the purity of Domenichino, the strength of the Carraccis, the *correggiescity* of Correggio, and the grand contour of Angelo." A gentler critic penetrated their artful pretension to subtlety in "taking care to praise the works of Pietro Perugino," and even gentler than Goldsmith, and most perspicacious of all, was the great Sir Joshua; and as for him,

> "When they talk'd of their Raffaelles, Correggios, and stuff,
> He shifted his trumpet and only took snuff."

Considering that Hogarth had just reason to feel that even the better connoisseurs did not duly understand and appreciate him, he is surely excusable for making little distinction among these, and that cross between the connoisseur and the picture-dealer which he most despised, and denouncing all together as mere distinguishers of first and second manners of the artists they admired, and as incapable of recognising the essential merits which they took for granted at second hand. To these gentry and their most quoted and chiefly relied on authorities, he went for some criterion or definition of beauty; they gave him what in their unsophisticated day passed for fine and florid sentences, but came at last to rest upon the conclusion that it was a "certain something,"—a "*je ne sçai quoi*."* The definition, he found, was ever slurred over, and the theorist hurried on to the description of particular pictures. Definition is in truth a difficult task, and the works of men who have the reputation of philosophers may be searched through still by the most candid student only to find that they succeed as lamely in defining beauty as Corporal Bardolph in vindicating the propriety of what Justice Shallow called his good phrase "accommodate." "Pardon me, sir! I have heard the word. Phrase, call you it? Accommodated; that is, when a man is, as they say, accommodated; or when a man is,—being,—whereby,—he may be thought to be accommodated, which is an excellent thing." And beauty, too, all allow is an excellent thing, but when called upon to define it only produce, as Socrates complained long ago, examples instead of definitions, beautiful things, not beauty.

An attempt at an analysis of beauty, then, which would scarcely be superfluous in our day, was certainly as little so in Hogarth's; and the brief tractate in which he set forth his views will certainly not satisfy us more fully than the "Sublime and Beautiful" of Edmund Burke; but at least it contains a plenitude of ideas having so direct a bearing on the subject, that it may still be read with advantage by one who is honestly seeking for that sort of guidance before making up his mind, which is given by having a subject well shaken up. The materials, it must be owned, are somewhat crude in themselves, and their arrangement even more so; but it is much that they are there. It is much also that he writes soberly and plainly, thinks more of his subject than of himself, and does not attempt by substituting fine writing for good sense to throw that dust in the reader's eyes which is to sound criticism what devil's dust is to grey shirtings. Hogarth does not always recognise the full import of his best remarks, and slights them to insist too positively upon others of secondary value. Uncandid critics could, therefore, do him injustice by seeming to take him fairly at his word, and then, assuming that he had said no more at all than what he happened to say with loudest, and a little misplaced, emphasis. The starting-point of his speculations, as of the first suggestion of

* The orthography is Hogarth's own, and his enemies made much of it.

his theme, was his celebrated "Line of Beauty," —a wavy line of equal reversed curvature upon a single plane. From this he starts, and to this he comes back with a pertinacity which gives colourable occasion for charging him with resolving all beauty whatever into distribution upon such a wavy line. He is happy enough constantly to et beyond his instance to its principle; but too true it is that he is very soon ready to revert to his narrower thought.

This observation applies even to the treatment of his original wavy line. Nothing can be more distinct than his exposition of how its beauty may be varied and enhanced by departure from a single plane as when it coils round a cone, and then forms what he distinguishes as the "line of grace," or as it was developed into the favourite stick-and-ribbon border of the wood-carvers of his day, "which may be seen in almost every fashionable house"; then he traces it with equal variability as following the line of shadow on a face or the bulge and curvature of a muscle; but he ever reverts to his simple, wavy, or serpentine line of beauty as the essential element of the effect. As to the "peculiar taste of elegance in the works of the ancients," he says, "I am persuaded my reader will now conceive it to have been entirely owing to the perfect knowledge the ancients must have had of the use of the precise serpentine line." He is constantly close to the larger principle, but never fairly grasps it; that whatever beauty such a line asserts for itself is dependent on contrast and gradation; and that contrast and gradation are qualities which are not the peculiar properties of lines, much less of any particular line. When he insists, as he repeatedly does with confidence, that to compose well is to vary well, and that variety includes all the other principles that are contributory to beauty, we are in expectation that he will occupy this point of view in force, and from it take a large development, since, manifestly, composition and variation are not restricted to lines alone; but we are disappointed. In consequence, he revolts from the prevalent angularities of a portrait by Vandyke even in an example which exhibits fewer than we see in the portraits of Charles I.,—the pointed beard, the lace collar, the star on the breast, the convergent reflections from the cuirass, the tapering hands, and more besides. Yet all these various angularities are elements of gradation no less than the successive *loci* of the engraver's favourite curve; and even the bluff King Hal of Holbein that he denounces as something like an animated letter X, owes its well-defined character to skilful variation of a definite theme. A mass of crystals in which there is no single curve,—nothing but straight-lined solids and angles,—may strike us, independently of light and colour, as beautiful, in virtue of its forms; and here, again, we can only admit an illusory relation to the line of beauty by the higher analogy of effective variation, of gradations and contrasts within certain characteristic limits. It would be hard to deny that the mazy right-lined intricacies of Moorish and Oriental lattice-work and architecture have not a claim upon our admiration for their beauty as well as the ingenious combinations of lines of beauty and grace in a Flamboyant window.

The little treatise has all the interest and all the inconclusiveness of a suggestive talk that a visitor might probably take his share in, in many of not the least distinguished studios in London, where artists realise beauty on canvas with far ess difficulty than they may find in framing a philosophy of æstheticism, to furnish forth satisfactory lectures for an academic chair. It is not difficult to help Hogarth to a better application of his own exemplar line by his own principle of composition by variation. This is given at once, with an opening to limitless variety, by pronouncing the curvature of the line of beauty at either end as a spiral, and with a marked proportionate difference. Such, indeed, was the process by which, in the hands of Greek designers, the spirals of the marble ornaments of the tomb of Atreus at Mycenæ, and those of the same school of art upon the jewelry of the tombs of the Acropolis, received a variation which ultimately produced the magnificent consoles of the northern doorway of the Erechtheum. The spirals themselves seem to have been a happy variation upon the sets of concentric circles which are the limit of variety upon archaic Cyprian pottery.

The line of beauty, or the serpentine line, after most liberal admission of its value, is but a single case of happy variation; and happy variation in art has a wider function than even ministration to the specifically beautiful to say nothing of its relation to the sublime, it seems strange that Hogarth should have omitted to declare its equal relation to the ludicrous. A truly and happily ludicrous composition may have the sequence and proportions of its elements expressed by a curve, though no single curve line enters into its arrangement; but such expressive curve would be a mere symbol, no essential element in the case. We have an example of this fact in the very composition which Hogarth appended to his analysis as illustrative of the incompatibility of angularity and beauty. There is a gamut of awkwardness as well as of elegance, and the comic muse sports in her own peculiar way, no doubt, but upon the self-same strings which subserve the gradations and contrasts of the beautiful and the dignified, and pursues like them, or like the sentimental love of the poet,—"an ever devious race,"—analogous, if not exactly

"True, to the winding lineaments of Grace."

Hogarth puts before us, in his second plate, a laughable country dance, with the intention to prove, by way of reduction to absurdity, how incompatible with beauty are movements and attitudes in which the principle of the serpentine line,—the line of beauty,—is superseded by prevalence of angles, combined in every variety of the sharp and the obtuse. By this means, doubtless, he eliminates graceful beauty successfully enough; but he does so by artfully ringing the changes upon clumsy attempts to be graceful; no two of his dancers go wrong in the same manner, and the unlucky grotesqueness of one is sure to be heightened in ludicrousness by well-contrived contrast to another form of misdirected energy in his immediate neighbour or his opposite partner. The result is that the artist has produced a true composition; he has "composed well by varying well" upon the theme of resolute exclusion of the very serpentine line which he hastily adopts as the indispensable condition of all good variation. His own practice again in this instance supplies an extension of his theory, in the proof that for variation to be good it by no means need be, or even may be, restricted to such simple and easy transitions as are exemplified or symbolised by the serpentine line. The humour of his scene is heightened by smart and sudden contrast with the gracefulness of the noble lord and lady who have honoured the festival by opening the set; they are moving with the ease and self-possessed but sympathetic grace which dancing only realises in its highest effort,—the minuet. When the stage has fully recovered itself,—be it allowed to interpose,—the minuet, unconfused, unhurried, may be again introduced as such a grace to comedy as a memory that goes back half a century remembers it to have been,—the grace, perhaps, that was the latest and but a brief survival from the presentations of comedy in a foregone century. Such a contrast to the other uncouth performers may seem harsh; even so the effect is all the more in harmony with their attitudes. It is supported by another equally so at the other extremity of the design, at the right foreground, between a graceful girl who with discontented face is reluctantly adjusting her cloak for departure, and her irate father,—or can Hogarth have cruelly intended him for her ill-matched husband? He sits with knees together and feet wide spread and turned in, for the kneeling servant to fasten the outside row of buttons of his gambados, clutches his hat under his arm, and twists himself awkwardly and painfully round to point indignantly to his watch, as if one time of night or of morning more than another was a justification for tearing away youth and beauty from a ball.

It was perhaps due to his early practice as an engraver before he became the painter that he proved himself, that Hogarth so constantly lapses, as he writes, into assuming that a varied line must be the ultimate secret of every instance of graceful variation, of appropriate gradation of light and shade, and of artfully blended colour. But this will not account for his narrow apprehension of the capabilities of the line, even as variable by curvature, to say nothing of interchange with right-lines and angular deflections. The London of his day did not furnish examples of Doric architecture; but he was familiar with the St. Paul's, Covent Garden, of Inigo Jones, as well as with Whitehall, and might have done well to test this part of his theory by proving how it would consistently explain the beauty of both structures. He would no doubt have brought it happily through an application to either Corinthian or Ionic architecture, and have experienced gratification and triumph in following the relief of transitions from vertical to horizontal by interposition of mouldings profiled by curves of double curvature. The accurate study of a Doric profile, however, would have taught him to do better justice to his larger enunciation, and recognise excellent composition effected by excellent variation of lines, with a preference for angles at points of transition rather than curves, the entire exclusion of the wavy and serpentine curves, and preference, in what curves were introduced, for the simplest, or such as became simple in virtue of their moderation.

He alludes familiarly to draughts of the Orders, and evinces in several allusions a lively and intelligent sympathy with architecture. His characterisation of the noble exterior of St. Paul's is as enthusiastic as just. He warmly appreciates, at the same time, the impressive dignity of the Abbey at Westminster, and returns again and again to Windsor Castle, in itself, or as seen at a distance "by either the rising or the setting sun," as a model of grandeur in simplicity. Our sympathetic smile, however, passes by natural evolution into one of very different expression when we come upon this enunciation:—

"I am thoroughly convinced in myself that a completely new and harmonious order of architecture, in all its parts, might be produced by the following method: by making choice of a variety of lines as to their shapes and dimensions [he means, of lines varied as to shape and dimensions], and then, again, by varying the situations with each other by all the different ways that can be conceived; at the same time, the contents or space to be enclosed within these lines must be duly considered and varied, too, as much as possible with propriety. In a word, it may be said that the art of composing well is the art of varying well." (P. 40.)

Considering that Hogarth in this treatise quotes Gulliver's Travels, it seems odd that he was not warned off from such a theory by its likeness to the scheme by which the philosophers of Laputa hoped to evolve metaphysical treatises by a mechanism to put all the words in their language through all their possible permutations, by simply turning a handle.

But this is just one of the instances in which, by haste and incaution, he allows an opponent to get within his guard; the "due consideration" and the "regard to propriety" which he reserves, make all the difference in the world in such application as he certainly has in view, but make so little show in his stated theory, as compared with what he would allow to them in practice, that they tell for little with the careless critic, and, with the captiously critical, were certain to go for nothing at all.

So thoroughly honest and downright is he that he does not hesitate to develop his theory of original design in architecture by his exposition of the process of developing beauty in a candlestick upon the same system. In his example he makes manifest enough how his general principles were to be applied and controlled by specific considerations. The height of the candlestick and of its socket are to be determined by regard to fitness, which is convenience; and fitness, whenever it applies, is to limit the horizontal spread of the divisions; "the vertical divisions, then, are to vary from the height of the socket and of each other, observing always that there should be one distance or part larger than all the rest; and horizontal distances are to be varied in like manner." He gives outlines which are sufficient to make manifest the contrast between a monotonous or confused design, and one that is agreeably varied by no mere casual Laputan evolution, but under controlling limits of fitness and simplicity.

The weak part of the whole exposition, whether for guidance of architect or of candlestick maker, is, of course, the absence of any detailed analysis of the ultimate governing fitnesses of magnitudes and profiles of parts relatively to purposes and expression. He is, therefore, quite as vague as the theorists he quarrels with for being satisfied to define beauty as the result of a just symmetry and proportion of parts to each other and to the whole. But he is not to be daunted, and boldly moves on from his candlestick to an architectural elevation again, as he is ready to pass from that to the observation of the instinctive dealing of the

beauties of his time with their allurements, who never put on two patches of equal size or in corresponding places, unless to hide a blemish.

"The front of Whitehall," he says, "by Inigo Jones, is an additional exemplification of the principle of varying the parts in a building, which would appear to be a stronger proof still were a building formed of squares on squares, with squares uniformly cut in each square, to be opposed to it, to show the reverse." This is not very clearly expressed, but the meaning will become manifest, and the good sense sublying clumsy and incautious exposition will be vindicated by a comparison of the admirable first chapter of Mr. Fergusson's "History of Architecture." The illustration there given, and more elegantly explained, of the relations between blank uniformity, tame variation, and artistic design, realises all that Hogarth intended to convey, but had scarcely the power to help to a candid recognition.

ROYAL ACADEMY LECTURES ON ARCHITECTURE.*

BY PROFESSOR EDWARD M. BARRY, R.A.

ARCHITECTURE IN THEORY—A MATTER OF PUBLIC INTEREST.

LAST year I commenced my lectures from this place by a necessarily mournful reference to our then recent artistic losses. Not only had the Royal Academy been deprived by death of its chief officer, but architecture had specially to deplore the additional loss of a most distinguished representative in Sir Gilbert Scott. He had passed away in the height of his fame, active in work, and full of honours, so that he may be said to have died in harness.

As Professor of Architecture he had examined the rise and progress of Mediæval architecture, in a series of admirable discourses, which have since been published. It seemed right, therefore, that your attention should also be directed to other developments of art, and we discussed in consequence the remarkable movement in Italy, in the fifteenth and sixteenth centuries, in favour of a return to Classical art. In so doing, the works of the chief architects of the time came under review, and notably those of Brunelleschi, Sansovino, and Palladio, which we associate in a special manner with the first, second, and third stages of the Italian Renaissance.

Having in this manner considered, in some detail, the various phases of the revival of Classical art in Italy, we may, perhaps, return at some future time to the examination of its achievements in the later days of the movement; but I propose, in the present lecture, to confine our attention to architecture in theory, as a matter of public interest, having an important social mission, and being even an element of national greatness.

To arouse and sustain such interest is, indeed, the main object I have in view. It is not possible or desirable to enter here into the details which every architect, indeed, ought to learn, but which he can acquire more efficiently in our schools, in the architect's office, in the workshop, and in actual practice. Lectures will not make architects, but they may, perhaps, be useful in encouraging a love for the art, not only in those who desire to live by it as a profession, but also in that much larger class which is willing to take an intelligent interest in its welfare.

In the latter category I reckon, as a matter of course, all the students of this Academy, whether painters or sculptors. To bring all the resources of art to bear in their integrity on the production of a perfect work should ever be the aim of the architect, and this he cannot hope to realise without the valuable aid of the painter and the sculptor. One of his first objects, therefore, must be to interest his brother artists in his work, for without such interest there can be little prospect of really effective co-operation; a co-operation which may sometimes even involve constraint and sacrifice, a readiness to sink the doer in the thing done. And if the architect should be ever ready to admit his obligations to the sister arts, so that they should have no more earnest supporter than himself, it should be remembered that he can give as well as take.

Architecture has been called the mother of the arts, and, as men must be housed as a matter of primary necessity, she can, at least, claim precedence in regard of time. While painting can depict existing or imaginary effects, architecture can create them. A picture or a statue, however famous, occupies but a small space, whereas architecture has grandeur, proportion, and associations, as handmaids at her call. If painting can give variety and contrast of form and colour, so can architecture; if sculpture claim an ideal refinement, and an exquisite balance of parts, as its own, architecture is able to assimilate all these charms, and to offer them a home, and the casket may sometimes be more delightful than the jewels, the shrine than its inclosed treasures.

Many reasons will, I doubt not, commend themselves to a thoughtful mind, why students in architecture, painting, and sculpture should regard themselves as possessing a common heritage, and devoted to a common aim. The special work of the architect demands, it is true, a supplementary technical training, over and above the lessons he may learn here, and in the economy of life he must devote a portion of his time to other things than that single-minded culture of the beautiful in art, for which he is at times ready to envy his more fortunate fellow students.

The latter will, however, give credit to such a one for a spirit sympathetic with their own, and when they look abroad, and see the master-pieces in which successive generations have delighted, they will not be slow to allow the full claims of architecture as a fine art; and in that case, when they are possibly tempted to think their architect friends too mechanical, because bent on drawing with exactitude, not only with the free hand, but also with rule and compass, they will admit that the spirit of an artist may exist, even among straight lines and geometrical forms.

I assume, therefore, that architecture cannot be a matter of indifference to any follower of art.

Nor should it, indeed, be so in any cultivated society of civilised men. If a taste for art be a sign of refinement, a proof of the value of that "sweetness and light," of which we hear so much now-a-days, architecture cannot well be set aside; nor, indeed, can her claims be placed on this narrow ground alone. Surrounding the cultivated minority is a vast constituency, a nation of workers, of hewers of wood, and drawers of water. To them is denied the enjoyment of pictures and statuary, excepting so far as these may be provided by special private liberality, or by the stinted efforts of an exchequer, ever grudging where art is concerned. A noble building, however, such as a grand cathedral, is in their midst. It cannot be hidden. It is a possession in which all have their share, and it is difficult to over-estimate the educational effect of architecture in such cases.

Our art is, therefore, a natural teacher, and even in these days may help to prepare the soil for the reception of that artistic seed, the importance of which I hope and believe is being gradually, if too slowly, recognised by those who regard the commercial prospects of our country with anxiety.

Passing onwards to another class of reasons for our claims on behalf of architecture, can we forget the associations with which it is surrounded? What student of history can afford to pass it by? When we enter one of the great monuments of olden time it is the Past which speaks to us, to excite in some of us it may be a burning desire to explore its hidden recesses, and live, as far as may be possible, amongst its ruins, while, in others, it may serve as an encouragement to go forward, to nerve ourselves against the difficulties of modern days, to do our little best in our own generation. In all cases the retrospect has much to teach,—respect for the great things that have been achieved with opportunities inferior to our own,—the old, old lesson of the vanity of human things,—and, above all, the modesty as to his own doings, which should characterise the true artist.

In all these things we find Architecture again a teacher, and this time of morals, as well as art, appealing not to the senses only, but also to some of the noblest instincts of humanity.

In an old country, we do not perhaps always prize as we ought the precious relics of the past, not being fully conscious of the advantages derived from their possession. To do so we must picture to ourselves the newness of a vast continent, such as the United States of America, full of life and energy,—of incessant occupation and bustling prosperity. I am sorry never to have visited America, but those who have done so have dwelt on the painful void caused by the absence of an architectural Past. And not they alone: Americans are the first to appreciate the advantages of Old England in this respect. They visit our cathedrals, they explore our old cities, they do homage at the shrines of great men, in whose reputation they claim a share, as descendants of a common stock.

Architecture brings home to us, then, the value of antiquity, and causes us to recognise its influence as a factor in education. The high pressure of modernism is about and around us. Hurry your work; spare yourself all unnecessary trouble; haste to get rich, are the precepts which it enforces, and against which our art is a standing protest, and a mute yet eloquent witness. The great architects of the world have worked on principles widely different from these. Sinking the artist in his work, the grandeur and perfection of the design was the object arrived at, not whether by compression and mutilation cost could be kept within some paltry calculation, (not if, by any means, completion could be secured within the narrow span of a human life.

Trouble and pains were not to be grudged in carrying out a great architectural monument. Can we doubt this as we inspect the highly-finished details of ancient work, some of which no ordinary eye can see, but all executed as a labour of love, the outcome of a feeling that nothing can be too good?

To the evidences of such a spirit as this, as well as to their historical associations, ancient architectural remains owe much of their value, and for this reason, apart from their often great beauty, the world has agreed to regard them as heirlooms, to be cherished and treated tenderly as regards their reparations, which, in common with all human works, they may require to ward off decay and ruin.

Art is cosmopolitan; it refuses to be boun d by national divisions; it speaks to humanity a universal language; nothing of human interest is foreign to its care. We all remember, I dare say, the excitement lately produced by a report that it was intended to interfere unnecessarily with St. Mark's, Venice, and the susceptibility shown by some writers in Italian newspapers as to the expressions of feeling in this country which, to them, seemed an unwarrantable interference of strangers.

This was, surely, an exaggerated sentiment, and those who live under the shadow of St. Peter's and the Vatican, might have been expected to remember that the term Catholic, which in religion expresses but an aspiration, represents a truth, and a reality in respect of art. Far from repelling any manifestation of solicitude, it seems to me that all who have the interests of architecture at heart should be the first to welcome any proof that its treasures are appreciated not only in the country of their origin, but also in distant lands, and that a jealous love of its historic masterpieces is co-existent with the civilised world.

It is not, however, altogether unnatural that men who care more, perhaps, for politics than architecture, should resent the advice of foreigners on matters which they consider of mere domestic concern; and it has been asked whether we should be disposed to tolerate suggestions to ourselves based upon a similar principle; while the recent destruction of Temple Bar (which I for one regret) has been referred to as an instance of recent vandalism on the part of Englishmen.

In reply I would say that the conservative architect would, in many cases, be only too glad to have his hands strengthened by well-considered remonstrances, from whatever quarter, against unnecessary tampering with our ancient monuments, though the suggestion of the particular comparison in the present case, does not perhaps lead us to repose any special confidence in those who can class St. Mark's and Temple Bar together, as if of equal artistic value.

Nevertheless, it may not unfairly be remembered that the test of the strength of a conviction is the willingness to make sacrifices for it, and it may be asked why was Temple Bar sacrificed at the cost of its various historical associations? It would not have been impossible to have retained the structure, while widening the streets around it. This, however, would have cost money, and so the easier course was adopted of removing an ancient land-mark and carting away its stones as old materials.

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* First lecture. Jan. 8, 1880.

I fear this is not the only instance in which our actions afford a mark for criticism in reference to either omission, or commission. Our English buildings, with their many beauties, have in few cases a foreign reputation wide enough to arouse abroad any warm interest in their favour, though we all know the feeling that has been excited among ourselves (not always perhaps manifested very wisely) against unnecessary innovation and destruction of historical interest, under the colour of needful repair.

There are some monuments, however, in the charge of Englishmen that have won for themselves a world-wide fame to compare perhaps with that of St. Mark's, Venice. Such a structure is the famous Taj-Mahal at Agra. It has often been described as one of the wonders of the world, a vision of loveliness, and a rare illustration of perfection of architectural art. The Taj is in the care of our own Government, and a recent traveller, while admitting that it is well kept at present, thinks it necessary to utter frequent and emphatic warnings against English doings in India, under the name of restoration.

I find in Mr. Val. C. Prinsep's interesting book of "Imperial India," the following reference to another monument at Agra, the Dewan-i-am. After describing its splendour as "fit indeed for a king," and even now displaying themselves in singular beauty in their faded form, he energetically exclaims, "Alas! the hand of the English engineer has been here,—what a sight! —the most tinselly gold, the crudest reds and yellows, the coarsest possible work. If this is what it was when new, let us have no more like it; let us at least leave what is picturesque and beautiful to delight the eye as long as there remains a trace of the pattern. Let us keep up the building and keep out the rain. But, for heaven's sake, O ye higher powers who direct such matters! spare us the decorations of the unartistic, and the wild imaginings of the engineer, which are not only horrible in themselves, but replace the traces, the beautiful traces, of former art."

We should, I think, be grateful to a member of this body for this and other outspoken warnings, and that they are needed may, I fear, be assumed from the note which the author appends to the above passage, to the effect that he heard a high official asking triumphantly if the work, thus denounced, was not "very fine."

At Delhi, Mr. Prinsep refers to another building, the Dewan-i-Khas, as the most beautiful thing he had then seen (before visiting the Taj). Here, he says, there had been "a few restorations, in awful colours, made for the ball given to the Prince of Wales, and, alas! many mutilations." Again, his wrath rises against the military guardians; for, he adds, "a real artist would have touched with re-painting. Here, of course, the engineers advise, and 'fools rush in where angels fear to tread.'"

It would seem, from these remarks and others like them, that the Indian Government already possesses that immunity from architectural advice which has been desired by certain authorities among ourselves, and has even been made in England a foundation of departmental policy. The care of delicate architectural monuments is not, however, the natural duty of a military profession, however highly-educated and illustrious. Architects prefer no claim to advise in respect of bastions, fortifications, or the many scientific details of military engineering. They may, therefore, without risk of misconstruction, agree with Mr. Prinsep in thinking that artistic training is a valuable quality for those who have the care of architectural treasures and might possibly have avoided some of the harm which he deplores.

In former times, the English rulers of India, immersed in the serious and all absorbing responsibilities of empire, did but imitate the indifference to architecture which prevailed at home,—an indifference which endowed London with the dismal dreariness of Bloomsbury,—an indifference which concealed the fabrics of our churches with plaster, and choked the space which should have been available for worshippers with the cumbrous galleries, and other structures, which certain so-called protectors of ancient monuments would even retain as historical. Now, however, it may be hoped that a better spirit prevails, both at home and abroad, and comments like these of an artist, uttered out of the fulness of the heart, may be acceptable to strengthen the hands of those who desire that English rule in India should conduce in all respects to the welfare of its inhabitants.

Acting on this principle, architects may join in pleading for an intelligent conservatism in the interest not only of art, but of those historical associations dear to all persons of knowledge and refinement.

Historical associations, however, even when combined with beauty, are sometimes but little regarded, if they clash with utility. Architecture will not do so. Her mission as an art is to wed science, and to work in a loving partnership.

The most beautiful examples of our art are also those which fulfil most completely the requirements of their origin. The Parthenon is not only the perfection of refined architecture, but also a temple of worship, admirably adapted to the purposes intended by its builders. The Taj at Agra is a building designed in strict accordance with the requirements of the Mahometan religion and worship.

In the history of the world we find various tendencies, prevailing at different epochs. Thus, in what we call the dark ages may be seen the results of a spirit of feudalism and deference to authority, which, pushed to extreme, develops despotism and superstition. At the time of the Renaissance, we come upon an age of freedom, not without its drawbacks and excesses, but which has asserted the right of inquiry, thus giving scope to individual intelligence; and, in the place of passive submission, has established the duty of seeking to ensure the happiness of the greatest number.

In like manner, our own time has had its characteristic distinction, and may, I think, be called the mechanical age. As a result of this development, the engineering and utilitarian element in our public works has assumed an exaggerated importance, and the question has arisen whether the quality of usefulness be not inconsistent with beauty in architecture.

The remarkable advance made of late years in the practical application of science has, perhaps, tended for a time to obscure the claims of art. Demands arose early in the present century for railways, docks, and other works of public utility, which architects were not forward to satisfy, and so engineers stepped to the front. These men have girdled the earth with iron, have improved communications by sea as well as land, and have found conspicuous success in their noble task of subduing the elements of nature,—earth, air, fire, and water,—and applying them to the service of man.

It is marvellous to reflect on the work of a single generation in these matters. The achievements of science have, indeed, been so remarkable that it is difficult to imagine similar progress in the future as within the bounds of possibility. It might almost seem that the wants of mankind had been accumulating for generations, like some rivulet fed by a variety of streams, until at last it bursts, with the force of a torrent, over all intervening obstacles.

Such considerations should, I think, be borne in mind, when we hear laments on the utilitarianism of our age. We are apt to be impatient; expecting cause to be at once followed by effect; forgetting that though for a time some special faculty of the intellect may develope an abnormal activity, the inner aspirations of man remain unaltered, and unalterable. These can never be satisfied with mere mechanical triumphs. They seek to penetrate into the deeper and unseen mysteries of the soul, and in these regions art will find a place.

One of our leading engineers spoke but lately, at the Institute of Architects, on the interdependence of the two professions, which he hoped would ever be in friendly accord. "The times and circumstances," he said, "are past when a man can be great as an engineer, and great as an architect, as were the few old Italian giants; but the time is not, and never can be, when a man can be a good architect without some knowledge of engineering, or a good engineer without some knowledge of architecture."

It is scarcely necessary, perhaps, to go to Italy for examples of the combination here advocated, for in many of our English buildings we have proofs of constructional skill to show that our own architects have been both artists and constructors. Surely in these later days, architects will not flinch from similar trials, and allow their art to separate itself from the life of their day, until it becomes a luxury rather than a need, and repels the man who demands a reason for his faith in favour of the æstheticism, pure and simple, of the dreamy *dilettante*. Society, while it will never give up the use of the enlarged powers which science has taught it to exercise, has nevertheless need of art, and so, amidst all the pressure of a so-called utilitarian age, architecture is still a teacher, and alone among the Fine Arts can bring her chastening influence to bear directly on the great works of our age.

The arts of painting and sculpture appeal in the absence of public encouragement to a more limited circle. Their works may delight their fortunate possessors in their own private galleries, but the public out-of-doors has no share in the enjoyment.

While, in this country at least, painters and sculptors spend their lives chiefly in working for private patrons, the architect's doings are more frequently a matter of public interest. Buildings of importance cannot be overlooked, and, for whatever purpose erected, must have an influence on the general taste. Consider, for example, the palaces of Venice. Not many of them are public buildings. Constructed for individuals, and for private occupation, they line the watery highways of the silent city and produce an unrivalled architectural effect, the enjoyment of which belongs to the humblest Venetian, as much as to their patrician owners.

But to return to the claims of architecture on public consideration. We hear often of the difficulties of art in presence of the spread of machinery, and the consequent increase of mechanical execution of things made formerly by hand. We all remember Mr. Ruskin's denunciations of machine-made ornament. More recently our distinguished member Mr. Poynter has dealt with the same question in treating of the influence of art on social life, and his view is, if possible, even more desponding. He has stated that we must not delude ourselves into the belief that we can produce works of art by the substitution of machinery for hand labour, or that the decoration of objects of common utility by a mechanical process, can ever have any artistic value.

This question is too large to be more than alluded to at the end of a lecture, and might lead to discussions on political economy rather than of art. It must, however, be clear to us all, that the world will never give up a system which by cheapening productions serves the wants of the many, even at some cost to the artistic cravings of the few. Mr. Poynter sees this clearly; for, after allusions to the moral causes of the modern system of manufacture, he says, "If we ask, then, is the return to such a state of things," as once existed, "possible, or, to put it more fairly, is the return to the time when every workman was also an artist possible, I answer that under existing social conditions it is impossible."

I am not prepared to say that these discouraging assertions, though true in the main, are not brought forward with too little qualification; and no one, I think, can shut his eyes to the improved taste shown of late years in many of our manufactures,—as, for example, in plastic and textile fabrics, and in wall papers, the course of trade in which has been turned by the advance made by the designers of English goods. In pottery especially, beauty and fitness have been studied in this country with remarkable success; and we all know the fame of Josiah Wedgwood.

A poor potter, deprived at an early age of one leg by amputation, rendered necessary by the consequences of small-pox, this poor unlettered boy was destined to cause a revolution in the trade of the English potteries. Beginning, as all must do, with the conviction that the foundation of all art must be true and honest workmanship, he first devoted himself to improve the material with which he worked, so as to fit it for the most perfect and enduring outlines, and the most delicate surface and texture.

With no advantages of education, his inborn taste led him to appreciate the beauty of Etruscan and Greek forms of art, and to them he turned for guidance, copying vases, cups, urns, and other relics, as he could obtain them, with much difficulty, by loan or otherwise. He sought the aid of Flaxman to make designs for the forms and decoration of his work. In the triumph which ultimately crowned his efforts we may, perhaps, find some encouragement.

The sense of the beautiful, so strong in Wedgwood, may yet serve its possessors to battle manfully against circumstances not certainly more dispiriting than those which his energy and perseverance encountered with success, and we may, I think, be glad that, owing chiefly

to the enlightened action of the late Prince Consort, museums now exist at South Kensington and elsewhere, to which future Wedgwoods may repair, for observation and study, while classes are open to such students at small cost, conducted by artists of eminence and other competent teachers.

Notwithstanding all such laudable efforts, however, it is, of course, impossible not to admit that the mechanical perfection of modern manufactures has a tendency to sink art in a dead uniformity of machine-like production. The very principle of division of labour on which reliance is placed must deprive the workman of interest in his work, so that he may tend to become himself almost as much a machine as that which he has to guide. Nay, in Society itself similar causes are at work, and as civilisation advances individual characteristics are more and more lost in the action of masses, just as the picturesque and rich dresses of former times have given way to the sombre and uniform suit of black of the modern civilian.

We see, on all sides, this tendency to a dull uniformity, affecting both art and manners, and to withstand it effectually in these modern days, we are told, as I have said, that it is impossible.

We may claim, however, for architecture that with her it is not impossible, and that although our town builders have afflicted us with mean designs, all alike and carried out by hundreds, architecture as a fine art has had nothing to do with such manufacture.

The great public buildings of a country can never be constructed as if cast in a mould. Each must declare the special purpose for which it has been designed, whether it be a palace or a jail, a church or a theatre.

Moreover, if the design of the architect must have an individual character, the same may be said of the handiwork employed for its realisation. Machinery, as applied to architecture, can never supersede the necessity of reliance on the intelligence of the workman. It may be used, and rightly used, for diminution of distressing toil, such as carrying heavy materials to a great height, but what machinery will supply the place of the skilled mason or carver, say in setting out the stones of a groined roof or decorating its bosses? Setting aside such manufacture of houses as I have mentioned, as no architecture at all, you will find none of its examples exactly resembling each other. Even in Mediæval churches and cathedrals, although built in the same style and for the same purpose, there is ever difference and variety, and though Greek temples resemble each other more than any other specimens of our art, they are still not exactly alike.

The charm of workmanship, therefore, which has been lost in so much else, still belongs to architecture. Over and above the beauty of the design, there is scope for the individuality of the workman, shown, it may be, by those accidental irregularities which distinguish all hand-made work from mechanical reproduction.

No true friend of modern English working-men will delude them with the idea that their handiwork will ever equal, in artistic value, that of preceding ages, unless each man will do his best, and unless the great trade societies will adopt as a maxim to rule their daily work, "Whatsoever thy hand findeth to do, do it with thy might."

This is the lesson I should like to see taught to the rising generation of artificers. I would have it learnt by them as from friends, for what are called the working classes have no better friend than the architect. His interests, rightly considered, are the same as theirs, for he desires to raise the standard of workmanship, and to develope the intelligence and skill of the worker. Bad must it be for art, bad for the workmen, bad for society at large, if such efforts are to be thwarted by combinations which may limit excellence, and discourage the efforts of genius to rise above the average.

If our artisans do not always appear naturally to add to their confessed mechanical pre-eminence, those gifts which we class under the general head of taste, in the same degree as some of their foreign competitors, we must not, on the other hand, hastily assume national inferiority, but may profitably inquire as to the steps taken by Governments and those who have influence and power to recognise art, to develop taste, and to reward its possessors. In the meantime, our ancient edifices stand erect as a witness in the cause of art, an irrefragable proof that beauty can co-exist with utility,—science with grace.

Architecture can thus, as we have seen, exert no inconsiderable effect on the artistic education of the community, and as this is a matter of general and not sectional interest, may we not ask that the influence of the State should be exerted to encourage and extend it?

We have lately seen a depressed commerce, uneasy at foreign competition, turn to various quarters for help, a help which she will perhaps best obtain by means of a thorough technical education, in which art, standing on a firm basis of sound and honest workmanship, should have a leading part.

The Indian Government has taken a forward step by giving the artistic commission to which we owe the interesting account of "Imperial India," to which I have already referred, and Mr. Prinsep's delineation of an important historical event will doubtless interest thousands, both in the present, and in the future. Why, however, should India alone be thus favoured, while our own national buildings are left bare and undecorated with pictorial art?

Why, for example, should our Houses of Parliament display, year after year, empty panels intended for historical pictures, but now covered only by the paperhanger, while empty pedestals abound for which no statues are forthcoming? The erection of this building was hailed by all lovers of art as a great opportunity. Good intentions were announced, great designs invited and encouraged, and while the late Prince Consort was alive, progress was made under his fostering care, seconded by the action of a former President of the Royal Academy.

Now all seems to be forgotten. No Royal Commission exerts itself in the direction of art, and the battles between the "ins" and the "outs" are far too engrossing to leave room for its consideration. If, however, artistic progress be really a matter of public interest, may we not hope some day to witness a renewal of intention and activity, some angel's stir in the dull pool of apathy? Artistic schemes for the public advantage, supported by the highest authorities, will surely not be allowed to remain indefinitely in abeyance, and perhaps a day may come when others,—possibly within the circle of the same Royal House,—will take up the congenial task, which only dropped from the hands of Death.

In the meantime, it is certainly not in Italy alone that statesmen need to be reminded that art may claim a hearing, even in the clash of politics. The Royal Academy has seen its way to address a foreign Government on a question of general artistic interest, and similar matters nearer home may possibly plead hereafter for equal consideration? Will it be unreasonable to urge upon our rulers that art is really a matter of public importance, and worthy of a share of the fostering care of the State so freely accorded in a neighbouring land?

Is it not time that artists should declare that they represent no unimportant part of a healthy national life? Would it not be well for our public men to cease to regard art as an extravagance to be repressed, lest it should give rise to calls on the public purse, which is readily filled at will whenever their policy requires it, but is always empty when Art prefers her claims?

I referred last year to the French Fine Arts Budget, which included a vote of 220,000*l.* for purposes connected with art. Of this amount no less than 30,000*l.* were to be devoted to the purchase of pictures and sculpture designed to decorate the public edifices, while 60,000*l.* were to be expended in the preservation of public monuments, and 18,000*l.* were appropriated to the French Academy, at Rome, and the National School of Fine Arts.

In this country it would, no doubt, be hopeless to expect at present to have a Ministry of Fine Arts, but the Minister responsible for public artistic matters might at least be a member of the Cabinet, with some power of initiative and independence of action. In that case, great public works of admitted necessity would not perhaps be mutilated and starved in execution, or be indefinitely postponed, by reason of an asserted want of means, and it would probably be found possible to invest annually some sum, equal to a small fraction of the cost of an ironclad, in commissioning works of art for the decoration of public property. It might at the same time be found unnecessary to entrust the architecture of public buildings to the clerks of a subordinate department, instead of enlisting all the talent of the day in the service of the country.

Our great national edifices, under such a system, might assume a new aspect, and no longer proclaim, by their barrenness of artistic completeness, that they are the work of those who began to build, but are not able to finish.

I have now, I hope, led you to agree with me that Architecture has claims on the attention of civilised society, not only as the gratification of a sense, still less as a mere æsthetic plaything, but as a serious object of enlightened national policy. In asserting this position, she urges not not her individual rights alone, for in painting and sculpture she recognises her truest allies, and with them she desires to advance.

Our buildings should glow with the colour of pictorial art, and give opportunities to the sculptor to elevate the public taste. In this way, art would become again a great educator,—a source of popular delight,—a part of the daily life of the people. In a mechanical age architecture would serve as an artistic rallying-point, while ever holding aloft the banner of progress. Delighting the seekers of the beautiful, she would appeal, also, to all who, for whatever reasons, value the teachings of a great historical past. To these our ancient buildings, guarded with a reverent care, speak with a force denied to the greatest orator; for they address us with a quiet dignity,—a melancholy pathos,—not to be attained by a living voice.

Architecture, however, is no recluse. She sits not apart, wrapped in a mantle of refined exclusiveness; but mingles with the throng of men, and delights to serve their needs. Her structures have ever a *raison d'être*, and are erected for use as well as for artistic display. No social problem is foreign to the province of the architect, for he knows that his art should be an expression of the wants of his age and country. If, in common with other artists, he be at times discouraged by the utilitarianism which seems to abound around him, he is not, like them, bound to treat it as an uncompromising foe, but rather as an estranged friend, to be won over once again by conciliation and skill. Convinced that the march of science will ever be onward, he will hasten to take the position in the ranks which is appropriate to the professor of an art which is based on science.

In conclusion, we may be sure that art will hold its own. Men are not machines to be content with the supply of their material necessities alone. The inner workings of the spirit cannot be weighed, seen, or handled. The great emotional instincts of mankind, which have made history, have not been crushed out by the monotonous pressure of the steam-engine. The passions and emotions of human nature are ever the same. Love of country, loyalty, religion, still move the soul as they did when the world was young, and with them may be associated the craving for beauty in art,—an art which may shed a ray of lustre on laborious lives, and may make men happier and better.

We have lately been told in eloquent words by our accomplished President, when presenting prizes to students, that he believes art was never pursued with more earnestness than at the present time. Ought not such a power to be utilised for the general good, bringing art to supplement the deficiencies which stand confessed in nineteenth-century life?

Architecture, at any rate, need not despair. Born of the necessities of man, appealing at one time to his highest artistic instincts, at another to the requirements of utility, and through all possessing historical and archæological interest, denied, to a great extent, to the sister arts, architecture can never die.

Let us hope that, in the future, she may show herself, as in the past, a worthy leader in the great cause of progress; and thus maintain and justify the position claimed for her of being, in no ordinary sense of the words,—a matter of public interest.

An Employer Complimented.—In Rochester, a few days ago, a presentation, consisting of a handsome gold watch, was made to Alderman J. G. Naylar, J.P., builder and contractor, Rochester, subscribed for by the 130 men in his employ. The presentation was made by Mr. Overed, one of the foremen, who read a suitable address amid much enthusiasm. Alderman Naylar thanked them in an appropriate speech, and his health was afterwards drunk, amid great cheering. The inscription inside the watch was as follows:—"Presented to James Gouge Naylar, esq., Alderman and J. P. for the city of Rochester, by the workmen in his employ, on his 60th birthday, as a token of the esteem in which he is held by them."

ON SOME CHARACTERISTICS OF FORM DISPLAYED BY THE ELGIN MARBLES.*

To begin with the general structure of the head and neck. In active men, with clear intellect and much endurance, may be remarked almost without an exception what the Greeks called the "*orthon karê*," or the erect head on a columnar throat, rising clearly and grandly from the expanse of the shoulders. To illustrate this, it is only requsite to observe the pose of the head and neck of the Herakles, that mutilated statue which perhaps attracts more general attention than any other in the collection. The fine and distinctive attitude of the head and neck in this example is the more remarkable because the pose of the rest of the body, which is semi-recumbent, does not favour such erectness in the head and throat; and yet in this case there is nothing unnatural or forced in their position, but they have the appearance of being perfectly just and easy. It has been concluded by experts that this figure represents a Hercules, and, under that aspect, it the more readily affords an obvious comparison of style of treatment when considered in relation with the celebrated Farnese Hercules. In that figure the pose of the head and neck presents a marked difference from that of the Herakles in respect to the style in which it is united to the shoulders and trunk, from which they do not arise in the Farnese version with the same distinctness and dignity as they do in the Parthenaic example.

It should, however, be borne in mind that everything in the Farnese Hercules seems subordinated to producing the impression of superhuman strength. This was its quality that doubtless made it so remarkable a favourite with the Romans, in whose idea overpowering strength in the male and all-subduing beauty in the female seem to have been transcendant considerations. This immense frame, loaded with piles of muscle, however it may seem conformable to fit their owner for bearing the burden of Atlas or crushing the form of the giant Antæus, would scarcely appear equally convenient for the achievement of that one of the Hero's labours which consisted in catching by speed of foot the golden-footed stag of Diana. We can scarcely fancy the ponderous form which is so familiar to us resting on his club, as toiling after the agile deer with any chance of success; while, on the other hand, the figure and proportions of the demi-god, as he appeared in the tympanum of the Parthenon, from its highly-trained and compact form, might give hopes of such an exploit.

If this figure is truly a Hercules, as the best authorities assert, and which the paw of the lion in the drapery in the base would indicate, it evidently represents him as young, for he has no beard. There is another Hercules in the British Museum in bronze, and somewhat under 3 ft. high, which is attributed to Lysippus, which is also young and presents a more active figure than the Farnese version, but it is not nearly so refined as the Parthenaic example. The rounded muscles of it have a peculiarly compact and tense appearance, and are but little overcharged,—and, indeed, perhaps not at all so if it is intended to represent an athlete of the prize-ring,—to whose proclivities those of the mighty son of Jove and Alcmena seem to have been occasionally allied. This small statue, however great are the abilities displayed in it, has a certain air of boxer vulgarity, which comes short, on the one hand, of the grandeur of the Farnese statue, and, on the other, of the blue blood and thoroughbred look of the Herakles of the Parthenon. There is another still smaller bronze of a Hercules among the statuettes of the Museum which, although diminutive, is of a very fine type, but it has some shortcomings in execution. It represents the hero as an older man than even the Farnese. Its torso is very broad and grand in style, but not overcharged with muscle. It is simple in its treatment, and is, in degree, of the character of the school of Phidias; but the arms are rather poor and weak, as is also the case with the legs below the knee.

These three renderings of Hercules are all, however, more in accordance with our modern ideas of a Hercules than the mutilated one from the Parthenon; whence, doubtless, arose the original uncertainty whether it might not be rather a representation of the hero Theseus, who played so prominent a part in the early history of Athens. The paw of the lion, however, mentioned above, which appears among the drapery, has been held to be decisive of the statue representing the son of Alcmena, as the destruction of the Nemean lion was one of his most characteristic and representative adventures, while no such exploit upon the king of beasts is on record in regard to Theseus, who, however, in his early youth is described as having been a great sportsman and destroyer of wild animals.

It is, however, this very non-distinction by any especially marked difference of type of strength from the other statues of the Elgin collection that we would venture to set in the best light we can as a characteristic of the Phidian school. We are not aware whether this has been commented on before; and also it is but the result of our own independent examination of the examples we possess in the British Museum; which we submit to the artist world for its judgment.

In the sculptures under the same roof which are anterior to those of the Parthenon, we seem to perceive no essential difference of type. Even youth and age do not appear to be distinguished except in the treatment of the heads; and it does not seem it was until afterwards that separate types of human form were adopted such as eventually discriminated and distinguished the Apollo, the Mercury, the Mars, the Neptune, or the Hercules from each other, or from that medium proportion of strength and beauty which appears to have been the original aim of the artist. A ready example of this uniformity may be consulted in the series of casts we possess in the British Museum, in a *salon* next to that which contains the Elgin works, from the Temple of Jupiter Panhellenius from the Island of Ægina. Eleven of these belonged to the western pediment, and are arranged so as to occupy its space as they are supposed to have done in the temple itself. They are unquestionably archaic in treatment, and possess in a marked degree the uniformity above mentioned. A similar quality may be noticed in the Egyptian and Assyrian works, also anterior to the time of the Parthenon, which also may be consulted near at hand. This may be recognised, indeed, as an undeviating character in primitive and early art, in which it seems to have been exertion and exploit enough to represent the best proportioned figure the artist was able to produce, without introducing innovation in the accepted contours, or variety of character in the personages represented.

It was, we venture to submit, in a transition period that the art of the Parthenon arose, wherein, although a wonderful inspiration of the beautiful took hold of the mind of the people, and more especially animated the artists, yet that they were not wholly freed from the influence of time-hallowed archaism, but that a degree of uniformity still prevailed; and this, we conceive, is recognisable in the invaluable collection of remains we are considering.

That these great works still partook of that quality of uniformity which appears to invest all very early art, can scarcely be said to render their relics less valuable, but rather, on the contrary, more so, just as those periods of history, when nations undergo some great upheaval and mutation, are those which are most picturesque and interesting, and give birth to the greatest effects and results. It was thus, in great degree, in consequence, probably, of the Phidian age having been one of transition, that it accomplished so much and left such undying traces upon the history of art. Afterwards, although Praxiteles and Lysippus and other sculptors, and doubtless, the great painters who lived at the same time, and were employed on similar subjects, but whose marvels of art, alas! have utterly disappeared from the face of the earth, introduced a far greater variety in the aspects and characters of gods and men. Notwithstanding this, the impress of the Phidian school has lived through all these more seductive attractions and still asserts its pre-eminence.

The idea, archaic in character, which informed it was assuredly a very simple one, namely, to produce in marble the representation of the finest possible human being, — the climax of mankind, and further, when introduced, as adjuncts to, and on the walls of, their temple to the divine virgin of intellect and force, to represent a race of such men. Here was the one top corner-stone or apex to the pyramid of human physical perfection which was sought for in the early period, and culminated in the time of Phidias. This was the result which this master had evolved from the contemplation of the grand Greek race around him as he had watched them in their daily movements and athletic games, and which thus he had fixed on and set up as the perfection of human form, neither too bulky nor too slender, too muscular nor too delicate. It is evident that the sculptures of the Parthenon were from various hands, if it were only that there were so many of them that they could not have been done by one pair; but in those we have remains of there appears but very little deviation from one type and rule of proportion, and it would seem that the mode adopted to give the higher divinities chief force and pre-eminence was rather to increase their scale beyond that of the other figures, than to vary their character. And this again partook of the archaic method imported from Egypt and Assyria. In the paintings and incised sculptures of the former, and in the relievi of the latter, gods and kings are represented as of many times the size of the common herd of people, who are often shown comparatively as pigmies trampled ruthlessly under their colossal feet; while the proportions of each class, relative towards each other, remain the same among the victors as the victims.

As far as the Parthenon marbles teach us, the school of Phidias, great as it was, had not wholly emancipated itself from this ready archaic method of indicating superiority, any more than from that of confining the theory of form to one type, and that it was left to other schools and the age that supervened to introduce a greater variety of character. This, however, arose doubtless from the single-mindedness of Phidias in his search for perfection. This view could not allow of more than one best, and with it his object was to evolve and build up from the handsome race around him that which he might deem the acme of form. If we examine all the remains of the separate figures in the round in the collection in the Museum, we perceive a marked similarity of style and development, and this is equally the case with the figures of the metopes. Thus, as regards the special qualities of form which characterise these beautiful marbles, the enterprise of examination and collation is simplified, and in this we will now proceed.

In descending from the head and neck to the thorax we see no forced details. There is no display of lines or undulations that one might not notice in every-day surface of forms of usual development; but what is so striking in them is the magnificence of the general proportions displayed, the simplicity of their treatment, and the admirable adjustment of parts so as to afford the greatest strength without overloading the form with muscle. Every requisite indication is distinct, and yet nothing is hard. The muscles have their skin on, and are never displayed like an anatomical cast,—a quality which has been occasionally imputed to the warrior of Agasias, but which probably would wholly be obviated in effect if its marble were more transparent. The modesty of treatment, however, in the flesh-surface of the Parthenon marbles may be recognised as being remarkable, and as never overstepping that of nature whatever may be the occasion.

The bones of the human body only occasionally, and in few cases, come so close to the surface as to have little more than the skin to cover them; but where they do so, the peculiarities of form which the surface assumes is of a different character from those portions where flesh and muscle are the sole cause of the outward contour. This displays itself by a more rigid quality in these bony parts than in the rest of the surface, and in no ancient statues, perhaps, is this distinctive diversity so clearly indicated as in the Parthenaic sculptures. In the thorax, the meeting of the collar-bones at the centre of the top of the sternum, or breast bone, the acromia, or high points of the scapula beneath which the head of the humerus plays, and these showing themselves by swellings and indentations beneath and among the muscles that move it backwards and forwards, up and down, are all indicated in the simplest and truest manner. Wherever there is bone near the surface, one feels it to be bone, and wherever it is flesh one feels it to be comparatively soft; as also on the ribs, wherever they are displayed, and where they are covered by muscle. In respect to the treatment of the thorax of these statues, there is, however, one point to which attention may be especially called, as it affords a recognisable and almost, we may say, a distinct trait of differ-

* See p. 4, *ante*.

ence between them and other antique statues. This is the line in which the basket of the ribs opens out in front on either side of its centre immediately at the lower part of the breast-bone.

In other antique statues the mode adopted is to represent this opening expanding at once on either side like the top of a semicircular arch; and even in some exaggerated examples to be noticed as arched up even more than this on either side. But let it be considered what is a special use of the bony case of the thorax, the firm although expanding basket of the ribs. Its office is, as we know well, to protect the superior vital organs of the body; and then let us notice in one respect in what manner this is done by Nature, and observe how this sound and careful artist is not in the habit of unduly exposing the very pit of the stomach, which is an easy point of attack in the human frame, by making this space at the top of the divergence of the ribs on either side in the form of a semicircular arch widely open at the summit of its segment, but rather how she follows in degree the contours of what is called, in Gothic architecture, an ogee arch. This species of arch, as is well known, divides at the top, not horizontally, but from a point, and trends downwards on each side for some way before it takes up the form of an arch proper.

And this line also, it may be noticed, was that which in degree the Parthenaic school adopted in respect to its treatment of this important portion of the structure of the human frame, as may be readily recognised in contemplating the examples in the Elgin room,—a consideration in which we venture to submit they are superior to almost all other antique works, and thus well deserving to have attention directed to this part of their theory of form.

In regarding, for instance, the front of the Hercules of Glycon, called the Farnese, it may be noticed that the arch of the front of the opening of the ribs is decidedly of the semicircular character, leaving a most tender region of the vital organs less protected than they are in the above-mentioned metope of which the front is so clearly displayed, and in which the opening of the ribs is in degree ogival. In the Herakles, by reason of its attitude, this ogee line is not so manifest; but in the river god, usually called the Ilissus, it is clearly exhibited. In the small Hercules to which we have alluded as of the boxer type, and which is in a case in an upper room of the British Museum, this lack of protection to the upper vital organs of the trunk caused by the height and upward sweep of the front margin of the ribs, which might be peculiarly inconvenient in that athletic exercise, is especially remarkable when placed in comparison with the mode in which the same portion of the body is treated by the Phidian school. We venture to add that this is one of the points of structure in which not only are the Parthenaic marbles pre-eminent for adherence to nature and to good sense and sound principles of structure, but also for their superior beauty. A mistaken view of the principles of the antique, drawn from other sources, may occasionally have led to an unnatural exaggeration of openness in this front line of the margin of the ribs, which may be well curbed and corrected, and the student advised by reference to the comparatively excellent ogee method in which this important contour of the human body is treated in the examples afforded in the Elgin collection.

We have still something more to say.

THE FAÇADE OF THE DUOMO OF FLORENCE.

ON the 28th of December the northern part of the façade was uncovered, completed as far as the cornice; the knotty point of whether the whole façade shall be crowned by the three "Cuspodi," or the original design of Arnolfo be carried out, with only a central gable, not being yet decided. The part already finished is about a fifth of the whole, and agrees with the old part of the cathedral in character, the work having been done with conscientious exactness. Of the effect of the whole when completed this small part can give but a faint idea; the symbolic intention must centre in the grand central portal, where will be represented the triumph of the Virgin Mother, to whom the church is dedicated, seated in the splendour of her glory on a throne placed in a rich tabernacle over the point of the arch of the great door, the twelve apostles (three of whom are placed in the part now finished), and the saints, seraphim and cherubim, encircling her, all tending towards this great central figure, to whom they offer their homage. The cornice, with a perforated heading, is left unfinished till the design of the upper part is decided on. The niches of the apostles are elegant; their columns and pointed arches adorned with lace-like marble work and inlaid mosaic and glass in the Byzantine style. The statues at present are of plaster, and will be put into marble as soon as the funds will allow. The statue nearest the north represents St. Thomas, modelled by Professor Paganucci; the second, St. James, by Bortone; the third, St. Barnabas, by Passaglia.

In the pointed arch of the door is a half-figure of our Lord, as shown to the multitude, the hands bound, the head bent low, the face expressive of sadness, beautifully sculptured by Passaglia, balanced by two angels, the work of Paganucci. The two small figures on pedestals on either side are by Torelli. In the lunette over the door is a painting by Professor Amos Cassioli, which, later, will be executed in mosaic. The two lower niches are occupied by copies of two figures of the Evangelists, taken from two figures in the interior of the cathedral in the chapel of San Zenobia, generally thought to be by Donatello, placed there *pro tem.* Modern facilities of transport and machinery have enabled the architect, Dr. Fabris, to carry out the work with more security and thoroughness than that done of old. The marble is not merely laid on as a veneer, but solidly embedded in the wall-work, and the pillars are of blocks of large size. The nature of the work can be seen where the present work has terminated. The white marble is from Serasezza, the green from certain vulcano-like excavations of solid mineral found near Piato, in the depths of the earth, in huge masses of spheroidal form, the nucleus alone of which is used in the works of the façade. The red marble comes from Poggibonsi, near Siena, and has the advantage over other red marble that air and damp have no effect on its colour, and is so hard as to resist the chisel, and can be worked only by the saw. Hence the adoption of it in pieces of larger dimensions, not in small lines only, and Dr. Fabris has made a more lavish use of this coloured marble than is found in the work on the sides of the cathedral, in order to give a more striking tone to the façade than is found on the Campanile of Giotto, which would otherwise have been too prominent in colour. Every detail has been carried out with great care. A fifth of the work alone has been accomplished, and that at the cost of above 300,000 lire,—about 12,000*l*. How the remainder is to be collected is an enigma. After six centuries of inaction, or rather indecision, the work has been begun in earnest, but no certain mode of procuring the necessary funds for the completion of the rest is known. As usual, much is hoped for from strangers, and the Florentines are content to let them help, without themselves making any great effort to forward the work.

THE COMMERCIAL VALUE OF EXHIBITIONS.

A FRENCH VIEW OF RELATIVE POSITIONS.

FROM the report on the Paris Exhibition, not the least among the many important results of the great show of 1878, a valuable opinion on the relative commercial and industrial positions of our country and of France is obtained, and if at the present moment of benumbing depression little actual benefit accrues from such knowledge, we may, at any rate, find in it encouragement to persevere.

By the side of the English opinion on French industry and French workmen, such as the report affords, the recent speech of M. Jules Simon at the distribution of prizes in the Exhibition of Sciences applied to Industry, to which we have more than once referred in these pages, affords English readers the rare opportunity of appreciating the contemporary and well-considered views of a Frenchman on his own country, its commerce, and its workmen.

After a well-merited compliment to the director of the Exhibition, M. Nicole, whose plan M. Jules Simon was not ashamed to admit himself as being one of those who imagined it somewhat bold after the show of 1878, but the success of which has shown how groundless were these fears, the orator continued:—

Exhibitions cannot fail to become more and more the normal condition of commerce. They will replace the existing commercial barriers by their contrary. The struggle will be one of perfection and cheapness instead of one of prohibitions and of restrictions. From the recent exhibitions of Paris, London, Vienna, and Philadelphia may be drawn this important lesson,—that the consumer will henceforth go, notwithstanding all obstacles, where the products are the best, and that if impediments are placed in the way to separate nations from each other, the facility of transport and publicity will overcome them. Jericho has no walls capable of resisting such formidable trumpets. The Exhibition of 1879, like its predecessors, has afforded the thoughtful other lessons, one of which must especially be noticed. Nature has generously treated France: she has given her the vine, the cereals and flocks, silk and other textile fabrics, mines of various natures, mountains and plains, great rivers, a large extent of coast on the Mediterranean and the Atlantic with sure and ample ports (and the Minister might have added, a northern and a southern climate with its intermediary differences), an empire in the north of Africa which once was, and which will become, under good administration, the granary of the world. When we consider such a position, perhaps France has no need to envy any other nation on the globe. But putting aside the vine, itself cruelly ravaged at present, France is in the first rank in nothing. England has more coal than she; she is England's and America's tributary for her immense consumption of cotton. America, which is becoming in everything the rival of the old world, is able to flood our markets with her meat and her flour, and to import live cattle in enormous proportions. On the other hand, we cannot and do not wish to bring the price of labour to the rate with which the workmen of several neighbouring nations are content. Finally, one fact cannot be dissimulated; those peoples who enjoy peace, and who are not troubled at home by party quarrels, have over France an incontestable advantage. All the time given to dispute is doubly lost to the labourer, chiefly because such vain agitations disturb the interests of the whole community and hinder the reformation and amelioration of the laws. While the United States form one vast factory or workshop; while they are trying everywhere to organise their consulates, to increase their sources of information and the conditions of security in the most distant parts of the globe, to facilitate commercial and industrial associations, and to render their credit more sure, more prompt, and more available; to multiply the means of transport; to build docks, form canals and harbours; we in France are obliged to struggle sometimes against one party, sometimes against certain social claims, at other times against those of politics. We have been unable in France to obtain, in the last three years, twenty meetings in our assemblies to vote the Customs Duties question, and thus drag industry and commerce from its position of uncertainty. Above all things, humanity requires certainty to rely upon; and a Government must know what it wishes,—the merchant must always know how he stands. How, then, under such conditions, has France been able to hold in the recent Exhibition one of the first ranks, often the first? Everybody knows the reason. The taste of France is superior to that of the rest of the world [we quote the honourable orator's words, without the comment which such a statement might rouse]. If this is true of French industry, it is doubly true of Parisian industry. Let us act in such a manner as not to lose this supremacy; for the future is not without menace, and this, gentlemen, is the great lesson, the supreme lesson, which the comparisons of the last few years have enabled us to draw. When we saw our neighbours rivalling us in the brilliancy of their ribbons and their silk, our first cry was that they had taken from us our models. The property of a model is a veritable property, and to copy it is not free trade,—it is industrial brigandage, whether practised between nations or between individuals. But if our competitors sometimes act in this manner, by taking our patterns, too often do they surpass us in theirs. They are advancing rapidly on that road on which at one time we stood alone. There are many points of superiority which we have lost; others, it is true, and a large number, still remain, but everywhere in our own domain we have a rival close on our heels. It must be acknowledged it is no longer a matter of doubt. An explanation must be sought. What is the

cause of this change in our situation? Is there decadence with us? No. There is decadence neither with the manufacturer, nor the chemist, nor the designer, nor the workman, but with our competitors there is progress,—rapid progress. We live in a time when no one can repose. The socialists speak of those lazy folks who consume without producing; there are none now. Time alone would ruin the holder of idle capital, without the need for a catastrophe, by the simple action of the modern industrial and economic movement. In the immense race in which all the nations of the world have entered, that one which stops is lost. Walking merely is not sufficient: one must run. And to what cause must it be attributed that our competitors gain ground so rapidly? They have instituted and are instituting everywhere schools. If our schools are not worth theirs, before ten years have passed they will beat us out of every market. There are three kinds of schools,—art museums, industrial museums; technical schools, properly so called; and travel; for the great school for industry, as in philosophy, is the world. In the days gone by the French did not travel. Other nations came to them; they did not leave their own country. All the best methods, all the best models, Frenchmen believed were to be found at home. They were firmly convinced that no where else could anything be done than mere imitation or parody. The exhibitions of recent years have opened the eyes of France, but the lesson has not been sufficient, if we wait peaceably till the English, the Americans, the Austrians (the Germans, M. Jules Simon ought to have added instead of the Italians), and even the Chinese and the Japanese, bring their masterpieces to our markets. We must go to them to guess their secrets; go to their school as they came to ours.

What is most important,—for it is alone the heads of a business who can travel,—is to have, and in abundance, good models and good schools. Did I say a short time ago that our competitors formed schools? The word escaped me, I must change it: I should have said, they form *men*. The stuff is not wanting, for the French are a people born for the industrial arts. The will is not wanting. During the Great Exhibition, Teisserenc de Bort remarked to me,—"We must reform our technical education," and I warmly applauded his suggestion. Private initiative gives the example to the State. Without speaking of the great philotechnic and polytechnic associations, of professional instruction, of the professional schools for young girls, several of the trades' committees of Paris have formed, at their own expense, apprentices' schools, directed with paternal care; a large number of important houses have shown the same foresight and the same generosity; and the directors of this very Exhibition have desired to aid in the general work of professional instruction. I think I may feel sure of being understood here, when I utter in the midst of you about me, what should ever be the motto of true patriotism, "Let us labour," and you will also understand me if I add, as an old professor, "Let us study."

M. Jules Simon may, indeed, be congratulated on so warm and unprejudiced a speech, which contains much matter of thought for the large class interested in the subject of his theme. "We must reform our system of technical education!" is a cry which, in the interest of France, it is to be hoped will meet with a warm response. In the mean time let England take a lesson, and take to heart the self-reproaches of a formidable rival.

Workmen's Exhibitions.—"Peter Pickup," in the *South London Press*, gives utterance to views which have often been urged by us. He says:—

"A South London Industrial Exhibition, I note, is in course of preparation, and is announced to be opened during Easter week at the Working Men's College, 143, Lower Kennington-lane. I do hope this exhibition will be conducted on principles of common sense. Most of the so-called Industrial Exhibitions I have seen have made me feel very melancholy over the amount of time absolutely wasted. You see, for instance, a cabinetmaker who, instead of devoting his spare time to some work of artistic excellence in his own trade, spends hours in tinkering at a model of a steam-engine which an engineer could have made infinitely better in a hundredth part of the time. The engineer, on the other hand, turns out a clumsy piece of furniture, ugly and ill-made, and which any cabinet-maker's apprentice would look with scorn upon. A potter exhibits a hideous construction made out of refuse cotton reels; a working jeweller shows with pride an absurd model of St. Paul's Cathedral or Westminster Abbey, the surpassing merit of which is that it is constructed entirely of ginger-beer corks; and it is for such examples of misplaced ingenuity that prizes are given!"

NORWEGIAN HOUSES.

COUNTRY life in Norway resembles more that of England than of the Continent, the farms and houses being scattered, and not gathered together into villages, with the same jealous care which one sees in Germany. In Norway, on the contrary, every well-to-do countryman dwells on his own property and in the middle of his farm, while the labourers (called *husmaend* house-men) have a separate dwelling on the property, together with a small bit of land for their own cultivation. Nearly all the houses are built of wood, and, as the article is plentiful in most of the districts, there is no stint of it. In the less-wooded cantons, however, the fact is shown by the houses being fewer and smaller, and the stables and farm buildings are then usually built of brick or ashlar mixed with turf, though the hay-loft is invariably of wood. In the neighbourhood of towns, the roofing is generally composed of tiles or slates, and when the country is mountainous, or near the fiords, these latter are in big, heavy slabs. On the western coast they use a roofing of clods of dry turf, covered over with brick or bark, and sometimes, in places where the wind is extremely powerful, with heavy stones placed on the top of the bark. Straw-thatching is unknown in Norway. Until of late years, it was the custom in a Norwegian farm to multiply the number of buildings upon it, so as to have a separate structure for every department. This was done to diminish the risk from fire, which was always very considerable, and as wood and labour was cheap, it was of little importance how much of each was used. But of late years insurance companies have very much developed throughout the country, and, as the risk is now less, it has become the fashion to unite the outbuildings into one. One of the most characteristic annexes, if we may so speak of them, of a Norwegian farm is the detached wooden building called the *stabur*, which serves at once as the larder and the wardrobe of the establishment. To protect it from rats it is raised about a yard from the ground on stone pillars, and it is entered by two or three steps, the uppermost being wanting, to keep up the same fiction of immunity from the rats aforesaid. The multiplication of buildings on a Norwegian farm property is partly due also to the customs of the country, which are, that when the eldest son, or, in case there is none, the eldest daughter, marries, the parents give them up the property, burdened with the duty of maintaining them. Fresh buildings, therefore, are soon run up, which often combine, with the purposes of habitation, sufficient room and accommodation for a certain amount of farm produce and fodder for a certain number of cattle. Most of the old farm-houses in Norway were built with very wide hearths and chimneys, such as one may occasionally see in an old-fashioned North-country farmhouse in England; but in those of more modern construction it has been found advisable to economise somewhat in the article of wood, and as, on the other hand, ironwork is very much cheaper and more commonly used than before, it has been largely substituted for wood, and especially in all the heating and cooking details. The waste of wood is very considerable, not only for purposes of construction, but for household purposes. The firewood is never stored up and dried, but is just cut as wanted.

Even in the Norwegian towns there is but little of the regularity of a street, the houses in the smaller towns being wide apart from each other, with gardens between. Most of the towns are dependent either on the timber, fishing, or shipping trades, and have grown up little by little, from very small villages, each new comer having put his house very much where he liked, without the faintest attempt at any uniform plan of action. Even Christiania, the modern part of which can only be said to be about 250 years old, is extremely irregular in its plan, and it is only within the last twenty years or so, that any serious efforts have been made to improve it in this particular. Until recent years, wood was the staple article for building even in the towns, Christiania having been the only place where much stone-work was to be seen. About fifty years ago a law was passed in Christiania, which made it more imperative that masonry instead of wood should be used, and, since then, the same regulations have been applied to the other towns, although wooden houses are still allowed to be built of a certain height, as long as they are a certain distance apart from each other. As they are less expensive to build, they find favour in preference to masonry, although, in some cases, we find a mixture of the two. The roofs are almost always of tiles, and occasionally slated, or covered with zinc. All the foremost buildings in the towns are now built entirely of stone, and the churches also; but in the country the latter are of wood, almost the only exception being the cathedral of Trondhjem, which dates from the end of the eleventh century. The laying of the timber baulks vertically in the building of the churches gives a most peculiar effect, of which one of the best examples is to be seen in the church of Hittendal in Telemark. The warming of the Norwegian houses is usually carried out by iron stoves, while in Sweden it is more the fashion to use enamelled ware stoves set in masonry. The Norway stoves are in general but badly-contrived, and very wasteful in fuel, but in the towns a better system is gradually coming into use, while the public buildings, such as barracks, hospitals, and colleges are heated by hot-air pipes. Wood is the ordinary fuel, but on the coast and places where timber is scarce a good deal of prepared peat is used, and Newcastle coals are becoming considerably employed in the large ports, where the coal is no dearer than it is in many parts of England. Fir or pine-wood costs from 10s. to 11s. the cubic yard, birch-wood about 12s. 6d., and coal 18s. to 21s. 6d. per ton. Lighting is still a science which the Norwegians have to learn. Fifty years ago, the fireplace gave as much light as the country people required, helped out by a small faggot of pinewood burning on an iron dish. Even the well-to-do families in the towns rarely allowed themselves more than one candle (and this of the poorest description), round which the whole family had to sit. A step was made in the illumination when cod-liver oil was introduced. By degrees the mineral oils are becoming more and more used, the date of the first paraffin lamp being 1862, and since then it has made rapid progress, and has done more to modify the dreariness of the long winter than any other article of civilisation. Between 1862-65, the importation of paraffin oil was 250,000 kilogrammes, or at the rate of 0·14 kilograme per head; between 1866-70 it rose to 1,250,000, or 0·74 per head; and during the years 1874-5 it increased to 6,000,000, or 3·3 kilogrammes per head. Gas was first introduced into Christiania in 1848, and is now in use through most of the Norwegian towns. As regards cleanliness and sanitary conditions, Norway may be said to rank fairly well with other countries. In most of the towns, there are water conduits, with a good supply of pure water, and in the country every farm of any size has a large wooden tank in the middle of the court always filled for the use of the house and the stables. Some parts of the population are cleaner than others, and this is particularly the case in Southern Norway, in Glommendal, Gadbrandsdal, the neighbourhood of Randsfiord, and at Ringerike. The low-level country round Christianiafiord and the interior of Trondhjemsfiord is alike noted for the tidiness of its inhabitants, but generally on the western coast, and in the poorer valleys like Sœtendal, Telemark, Hallingdal, and in the Valdus, there is a good deal to be desired in this respect. The fishing villages are unclean and unsavoury, as they are, indeed, everywhere, and particularly in the north of Scotland. As we get further into the north country of Norway, we find less cleanliness, and this culminates amongst the Laps. The Fins, however, have a good deal of self-respect under this head, and are cleaner than their neighbours. The mortality in Norway is less than in either Sweden, Denmark, France, or Belgium. The average male life is 47·4 years, which is 5·2 longer than in Sweden, 3·8 more than Denmark, 10 more than Belgium, and 8·3 more than in France. Female life is longer by 4·2 years than in Sweden, 4·5 than in Denmark, 11·1 than in Belgium, and 9·4 than in France. This high average is due, for one thing, to the fact that the mortality of infant life is smaller in Norway than in any country in Europe; and the reason of this happy condition is that the Norwegian mothers of all degrees, from the highest to the lowest, make a rule of suckling their children themselves during the first year, and perhaps a little longer, up to the thirteenth or fourteenth month.

Social Science at Melbourne.—The Melbourne Social Science Congress, proposed to be held contemporaneously with the Exhibition this year, has been successfully arranged.

FROM THE BANKS OF THE SEINE.

M. FERRY remains Minister of Fine Arts, with his energetic *aide*, M. Turquet, as under-secretary. To the Ministry of Public Works, a most important service, and one for which it is to be regretted we have in England,—where our great public works are so numerous,—no equivalent, M. Varroy, an eminent civil engineer, has been appointed. One of his first duties, in a reception at the old Rue St. Dominique, was to express his plans and recommendations to all placed under his control. After an address to an important deputation of civil engineers, in which were referred to the important measures which are shortly to be passed for the further extension over the country of railway and canal communication, among other works, the Minister addressed the functionaries of the "Civil Buildings," the inspectors-general, and the architects of the national palaces. Speaking of his old friendship for the civil engineers, among whom he was brought up, he expressed his hope that, "in default of a similitude of studies and a community of recollections, he might claim the sympathies and confidence of the architects by the profound admiration he felt for the monuments of the great national architecture entrusted to their care, and the inventory of which, already so considerable, had been enriched by more than one among those to whom he spoke, and whose names had attained the high regions of renown. Engineers and architects," the Minister remarked, "may now freely help each other. Indeed, the former now recognise that it is not alone sufficient in the execution of their works to conform to the more or less gross rules of the resistance of materials, but they must even, in the most simple works, not exclude elegance from their plans; in general, they must yield to the rules of a severe taste, and even sometimes to the exigencies of true artistic sentiment. On their side, the architects have learnt, especially since the extension taken in the use of iron for building purposes, that they must not neglect the lessons of science or the theories of resistance of material." With a further assurance of his constant support and consideration, and an expression of thanks for the help he received from the architects in the accomplishment of his mission, M. Varroy closed his address, one which we trust augurs well for the future. It is to be hoped that one of the first duties attended to may be the settlement of the by no means creditable dispute between the engineers and the architects in the matter of Mont St. Michel, seriously menaced by the action of the former in the dyke they are constructing across the bay with a view to utilising it for agricultural purposes.

While we are speaking of ministers and their actions, it may not be out of place to mention that the regulations for the forthcoming *salon* have been sent up to the Minister of Fine Arts for his signature. A number of important changes have been introduced by the advice of M. Turquet, the under-secretary, and M. Lafenestre, inspector of fine arts. As regards the classification of the works, the alphabetical order it is proposed shall be abolished, and the pictures grouped according to their subjects: the still-life, battle-pieces, &c., together. The works of the artists *hors concours*, who do not compete for the prize medals, will be also put aside, as also those of the members of the Institute, &c. These proposals will, it is felt, work a revolution in the artistic world, and doubtless before long more will be said of the matter. Far more liberally the architects are treated here than at Burlington House, where the injustice they suffer is a crying one; the profession, knowing the energy and goodwill of M. Turquet, have been proposing, through their press, several changes in the arrangements of their exhibits,—such as the right of placing the frame containing their ground-plan in a horizontal position below their elevation; sloping desks, and other innovations. A warm complaint of the unfair size of frames in modern exhibitions has also recently appeared in the *Architecte*. A characteristic story is told by M. Maret-Leriche. When Cherubini was director of the Conservatoire, he remarked that the lady competitors presented themselves with the most expensive and costly toilets, by means of which they evidently hoped, and often with reason, to influence the judges. Cherubini decided that thenceforth they should be forced to content themselves with a white dress, simple, and modestly buttoned up to the chin. In this manner Cherubini preserved the interests of the young pupils, who often ruined themselves and their families in preparation for the examination. The modern picture-frame abroad is reaching much the same pitch as the toilets of the Conservatoire. As regards the architects at the next *Salon*, the under-secretary of fine arts has urged that more attention be paid to their exhibits.

We are speaking of regulations; after the interesting communication of Mr. Stark to these columns, not long since, in which such due praise was given to the success attained by the French municipality in that great desideratum, even necessity, in city architecture, collectiveness of design and harmony of masses, it may not be uninteresting to lay before those who read the communication to which we refer, in which were specified the regulations that produce the effect praised by Mr. Stark, the views of M. Charles Garnier, the architect of the new Paris Opera-house, on this very question of the municipal regulations with which Parisian architects are compelled to comply. In the number of *Paris Murcie*, a journal produced with the aid of all the most eminent artists of France, and the large proceeds of which have been devoted to the sufferers by the recent inundations in Spain, M. Garnier, asked to contribute his mite to the general store, expresses his views, above his minute signature, in an article entitled "If I were Prefect of the Seine":—"If I were Prefect of the Seine, instead of changing the names of the streets, which at a future time may be easily re-changed, I should make a series of good regulations which would have a chance of lasting a long time. Of your motto,—of our motto, if you will,—you make great use of the word 'equality.' Take rather that of 'liberty,' and allow people to build after their fancies. Do not impose on architects maximums of height and projection, and leave to each the right of raising his building according to his convenience, and planting some moucharabis at the corner of his balconies. It will interfere less with the neighbours than the trees of the boulevards, which throw their branches into the windows. Instead of encouraging the fabrication of monotonous cages for lodgers, encourage on the contrary campaniles, gables on the street, marbles, enamel, and mosaic. In every case, if you do not feel you have the power to revive at Paris that desirable picturesqueness which I regret, at least do not follow the example of your predecessors by contributing to sweep away the little which remains. Colour as well as form gives charm and movement, and if time gives to our monuments an harmonious *patina*, every pains must be taken to preserve it. Recall therefore that superannuated and deplorable decree that every house shall be scraped and cleaned every ten years, under the pretext that it is hygienic. Why are you not logical, and only carry out such an operation with private buildings? Scrape also Notre Dame while you are about it, and the Sainte Chapelle and the Baths of Julian, and you will see the beautiful effect these buildings will present when you have taken off their skin. Architects are not pariahs, and they respect the works of their masters quite as much as other artists, and you would see what these latter would say if by prefectoral regulation, the Marriage of Cana, or the Venus de Milo, were scraped. But I am not Prefect of the Seine, and frankly I do not regret it: I prefer to be his friend, Charles Garnier."

THE LIABILITY ATTACHING TO THE STORAGE OF WATER.

THIS subject of the liability which rests upon those who store water on their land in reservoirs, or indeed who keep it in cisterns in their houses, in relation to any injuries which may arise to their neighbours' property, is of very considerable interest to owners and to numerous professional persons, and we are fortunately enabled, by a series of judicial decisions, to formulate some distinct statements in regard to the principles upon which these rights and the corresponding duties are based; and it must also be obvious, without elaborate explanation, that the principles which relate to the accumulation of water, must equally apply to the other "elements," earth and air, and, therefore, that if we can obtain some guiding principle in relation to the first element, we can find our way out of many difficulties which arise in practical matters connected with all three elements.

The first case, which enunciates with great clearness and brevity an important principle, is a decision of the House of Lords in 1868, in the case of Fletcher *v.* Rylands (37 L. J. Reports, Exch. (H. of L.), 161, and L. R. 3, H. L., 330). In this case the water was stored in a reservoir in a mine: this bursting, owing to great pressure, the lower and adjacent mine of the plaintiff was in consequence flooded. But, as a matter of fact, it is not necessary in this or in any of the other cases to which we shall refer, to go into details. It may be taken that there existed in each and all of them this one salient fact, that water had quite legally been stored in a reservoir, or what is the same, an artificial lake or pond, on a certain piece of land; and the rule which was laid down by the House of Lords in relation to these circumstances was that any one who, for his own purposes, brings on his land and collects and keeps there anything likely to do mischief if it escapes, must keep it at his peril, and is, *primâ facie*, answerable for all damage which is the natural consequence of its escape. Therefore, there must, as the Lord Chancellor pointed out, be what he called a "non-natural" use of the land in question. Consequently, the defendants in this first case were held liable, and a broad principle was established which applied, it will be obvious, just as much to the collection of gas in a gasometer as of water in a reservoir, and just as much to a cistern in a suburban villa as to the reservoir of a large town. It is noticeable also that the doctrine of Fletcher *v.* Rylands has been thoroughly approved of in America. For, in a case in the Supreme Court of Massachusetts (Shipley *v.* Fifty Associates, 106 Mass., 194), decided in 1870, this tribunal held that the owners of a building with a roof on it, from which snow fell on to the passers by, were liable for any damage to pedestrians, although they had taken all precautions that they could do. "He (the house-owner) must, at his peril," said Judge Ames, "keep the ice or the snow that collects on his roof within his own limits, and is responsible for all damages if the shape of his roof is such as to throw them on his neighbour's land." And in another place he says very much, indeed, to the present point, that "if the defendants had constructed a reservoir in their attic to be filled by the rain, they would clearly be liable for damage occasioned to their neighbour by the breaking down of such a reservoir"; and the American judge considers this example based not a little upon the authority of the case in the English House of Lords.

But, in the judgment of Mr. Justice Blackburn, which was endorsed by and formed part of the judgment of the House of Lords, occur these words: "He (the owner of the reservoir) can excuse himself by showing that the escape was owing to the plaintiff's default, or *perhaps* [the italics are ours] that the escape was the consequence of *vis major*, or the act of God." Here, then, were two exceptions to the general rule, the first of which was undoubted, the second of which the judge evidently was not in his own mind sure. We have, however, to wait for some years until any judicial light is thrown on these exceptions, but in 1876 came the case of Nichols *v.* Marsland (46 L. J., Ex., 174 (App.); L. R. 2, Ex. D., 1). In this instance a jury found that the reservoir had burst owing to the act of God, such act being an extraordinary and most unusual flood. As a matter of argument, it may be said, there is hardly a natural event which takes place and affects the affairs of men which may not be considered as the act of God, if we regard it in the light of religious teaching. But it clearly means in law, not only an unusual event, but one which could not be foreseen by any reasonable and prudent person; and this, in the opinion of a strong judicial body, was an event which caused the owner not to be liable for damage caused by the bursting of a reservoir. Hence the rule was made more clear than it was by the decision of the House of Lords. Most recent of all, however, is the case of Box *v.* Tubb, 48 L. J., Ex. D., 417, decided during the past year by the Exchequer Division. In this instance the reservoir had overflowed and done damage to the plaintiff's house, and the cause of such overflow was the emptying of a large quantity of water from the reservoir of another person which communicated with the another person which communicated with the defendants' reservoir from which the defendants' reservoir was fed. The Court again decided that the defendants, having regard to the cause of the overflow, were not liable for the damage done, because they could not be expected

to anticipate the event which caused the overflow. And a more confident judgment than this was never delivered by any tribunal. Therefore, this last decision further enlarges the exception grafted on to the original rule, and takes away the liability of the person who owns the reservoir when the cause is one over which he had no control, and one which he could not, by reasonable and ordinary precautions, guard against.

But, confidently as the Court delivered their judgment, we doubt whether, after all, it is sound law. In the first case, in the House of Lords, the Lord Chancellor stated that a man made a non-natural use of his land at his own peril; and in the second case, a distinctly extraordinary event was found to have occurred. But the overflow of an upper reservoir is one which might occur, and cannot in any sense be considered the act of God, or a *vis major*. It is true that the owner of the reservoir in no way brought about by any immediate action of his own the thing which occurred, but there is a well-known rule of law that when one of two innocent persons must suffer, he must be held liable by whom the possibility of the damage was brought about, and under this principle the owner of the reservoir, however careful he may have been, would distinctly have been liable. In all these cases, then, the owner of the reservoir has not been negligent. Some one of two innocent persons, either this owner or the owner of the injured property, must suffer loss; and since the fact of the reservoir being in existence is very clearly the immediate cause, the owner of it should, as it seems to us, be considered as the person who is liable. The decision of the House of Lords in the first case, and of the Court of Appeal in the second, enunciated a plain and, to our minds, a just proposition that the owner of land who kept on it water or any other element must be answerable for damage caused by it, except in the case of what the law calls the act of God. We feel inclined to think that the rule would have been still more just without the exception, but the recent decision seems to take away a fair protection from many owners of property, and a liability from those who may be justly considered to have undertaken a measure at their peril.

MONUMENT TO VICTOR EMMANUEL IN FLORENCE.

A MEETING has just been held in Florence of persons forming the Committee for the erection of a monument to the late King Victor Emmanuel. The sum to be disposed of is 100,000 lire (4,000*l.*), and the monument is to be erected in the square called Victor Emmanuel, near the entrance to the Cascine. It is to consist of a column composed of massive blocks of granite, introducing fasces of bronze, with a capital adorned with the lily of Florence. The base of the column is to be adorned with bas-reliefs, representing deeds in the life of the late king. On the fasces of bronze must be inscribed the States into which Italy was divided before being united under his sceptre. The work is open to competition. The cost is not to exceed the 100,000 ilre. The four most commendable sketches are to be rewarded by a gift of 1,000 lire each.

BUILDING IN MARSEILLES.

DURING the course of the latter half of last year seventy-five authorisations have been given for raising scaffolds, &c., for the purpose of building or reconstructing in Marseilles. This town has a population of 318,870, and, consequently, the above number of enterprises undertaken within the space of six months in this provincial town is considered by the local papers as a proof that the building trade is prospering. Martin-Nadaud, the mason who was elected deputy to the National Assembly, once remarked,—*Quand le bâtiment va tout va*, and certainly a great deal may be said to support the veracity of this maxim. Undoubtedly, activity in the building trade brings prosperity to many other crafts. Locksmiths, carpenters, joiners, glaziers, painters, house-decorators, sculptors, are directly interested. And when once a house has been built it must be furnished, and this means work for upholsterers, carpet manufacturers, and for the trades in articles of luxury and the decorative arts. So far, however, as Marseilles is concerned, we fear that M. Nadaud's maxim does not apply; for if, as we are assured, the building trade in that town is prospering, the same cannot be said of other businesses.

The importations and exportations have greatly diminished, particularly with respect to corn, which is the staple article at Marseilles. The local revenue derived by the Excise on wine and alcohol has so fallen off that, by a recent decision of the Municipal Council, it has been necessary to augment the amount of the duties levied so as to be able to balance the budget. A reduction in the consumption of wine and spirits, abroad and at home, is a sure sign of distress. Matters would, however, soon mend, if, apart from building a few houses, the authorities would at once proceed to the construction of a new port. They have recently improved 324 side-walks, by laying down fresh pavement, &c.; and now that traffic by land has been thus facilitated, something might be done to entice a larger number of ships into the port. This question has, indeed, been seriously agitated, and the suggestion is coupled with that of making a canal from Marseilles to the Rhône, and from the Rhône to the British Channel. Gigantic as such an undertaking would be, it has found many ardent advocates who maintain that this is the indispensable sequence to the enlargement of the ports of Boulogne, Calais, Dunkirk, &c. Why should large ports be built on the northern coasts if they are not destined to accommodate the huge ships that cross the Atlantic; but how much greater would the attraction be if from the Channel these ships found a short route leading to the East cut for them through the heart of France to Marseilles and the Mediterranean. Such are some of the ambitious schemes which are freely discussed among the engineers, architects, and public men of the great southern port.

Marseilles.

A RAILWAY TO TIMBUCTOO.

ON the evening of the 3rd inst., in the simplest and quietest manner possible, whilst all Paris was rushing off to look at the icebergs floating down the Seine, a little band of travellers left Paris by the Lyons railway station *en route* for Algiers, and definitively for Timbuctoo. This expedition, partly scientific, partly commercial, is made under the auspices of the Minister of Public Works, and with the approval of the Minister for War. The principal object of the mission, composed of half a dozen engineers and military officers, under the direction of Lieutenant-Colonel Flatters, lately chief of battalion in the 3rd Turcos, and who was Superior Commandant of the "Cercle Arabe" of Laghouat, is to reconnoitre the country where the Trans-Saharien or Central African Railway is to pass. The Trans-Saharien is in effect decided on *à priori*. But where will it pass? How will they construct the line? In France, when they wish to lay down a line, nothing can be more simple. They trace an outline, they drive in the stakes, and after having studied the ground, they make a rough estimate of the works. In Africa, however, it is different. Alone, in the Sahara, it is the Desert, with its sand and its dreaded simoom, that must be confronted. So up to the present they have been content with hypotheses based on travellers' tales. The Générals de Colomb and Colonieu, and after them M. Dupouchel, engineer and promoter of the Trans-Saharien, propose to pass to the south-west, by the Touat, where there are 320 oases well peopled and capable of alimenting the first traffic. Equally competent persons propose other lines, and the debate runs high. We shall not discuss it here; our object is simply to let English readers know what other nations are doing. Although a great part of the country that must be traversed has not yet been visited by any European, yet some isolated explorations of certain parts have been made, and valuable information on many points has been obtained. For a long time it was a question whether the present expedition should be exclusively civil, military, commercial, conquering, supplicating, or menacing, composed of Europeans or natives. They decided on a united one. The escort will be composed like an ordinary caravan of the country, with the view alone of defending it against the rovers of the desert, who, in groups of 100 to 150, go armed, seeking adventures. They will have 100 men,—guides, merchants, camel-drivers, not belonging to any organised troop; but, furnished with good arms, and chosen with care from amongst the natives who are friendly, and who leave their goods and families in the hands of the French, to answer for their fidelity. The mission has all the more chance of success that, whilst being organised for safety and to be able to defend itself if necessary, it will yet have a certain diplomatic character, treating with chiefs and with certain native notabilities, giving them presents,—important presents (for they carry with them an immense amount of baggage), amongst other things, 30,000 francs, in 5-franc pieces. These the Arabs of the Desert like better than gold, for they have often been deceived by false gold. The French naturally desire to see some of their nation share in the laurels gained by Livingstone and Stanley, and we earnestly wish the expedition success.

STATISTICS OF FRENCH INDUSTRY.

THE Statistical Annual of France, which has just been published, gives us some curious and interesting information on the manufactures and resources of France. Of course, a large proportion of these statistics relate to crafts that are either directly or indirectly connected with the building trades. Here are a few of the figures given:—There are in France 190 glass and crystal factories that give employment to 27,148 workmen, and their annual product is estimated at 3,625,563*l.* Five hundred different establishments manufacture paper and cardboard. This occupies 28,656 workmen; the bulk of their produce is put down at 1,413,920 *quintaux métriques*, and worth 4,150,564*l.* There are 500 gas factories, with 10,380 workmen, and yielding per annum 380,311,365 cubic mètres of gas, which is sold for 4,574,871*l.* On the other hand, there are still 177 wax and composite candle manufactories, where 3,322 workmen are employed, 338,485 *quintaux métriques* of candles are produced, and sold for 1,270,105*l.* In England, Price's Patent Candle Factory alone employs about half the above number of workmen, but we must bear in mind the abstemious character of the French people, especially the peasantry, who prefer going to bed than incurring the expense of burning a light. The kindred business of soap-boiling employs 3,477 workmen, in 347 factories, and the soap manufactured equals 1,569,713 *quintaux métriques*, or 4,207,224*l.* The refining of colonial sugar is done by 7,672 workmen, and the sugar produced amounts to 3,495,712 *quintaux métriques*, or 21,594,476*l.*, and treacle to the value of 790,301*l.* Again, we are told that there are 107,109 workmen employed in 1,163 cotton manufactories. The steam power is equal to 34,466 horse; there are 4,875,324 spindles, 51,184 mechanical looms, and 94,892 hand-looms. The 2,099 woollen manufactories employ 110,954 workmen, 29,913 horse-power, 2,946,632 spindles, 36,267 steam or power looms, and 62,230 hand-looms. Finally, we have 618 manufacturers of flax, hemp, and jute, employing 55,108 workmen, 13,907 horse-power, 731,243 spindles, 24,656 power-looms, and 42,806 hand-looms.

THE NEW THEATRE, GENEVA.

OUR readers will be glad to see even a somewhat rough view of the new theatre of Geneva. It has been erected upon the Place Neuve in that town, where, notwithstanding some objections that may be taken, it produces a good effect. Claim is made for it that, next to the Opéra of Paris and the Opera-house of Vienna, it is the handsomest theatre in Europe. It has been constructed, moreover, in the same style as the work of M. Garnier, whence M. Goss, of Geneva, who is the architect, no doubt drew his inspiration, as will be seen on examining our illustration.

However, the imitation stops short at the exterior. Three glass doors, protected by small gratings in the form of lyres, give access to a spacious hall, called the "Salle des Pas perdus." To the left are two vestibules, of which one is intended for the admission of persons arriving in carriages; to the right is a very commodious *café*; facing are two very tasteful wickets in oak, between which open the doors to the vestibule proper. Here are the check-taker's office, backing on to the pit, and the two great square staircases leading, the one to the left, to the second tier, the other to the right, to the third tier. These stairs luxuriously decorated and lighted, have a very striking effect. The

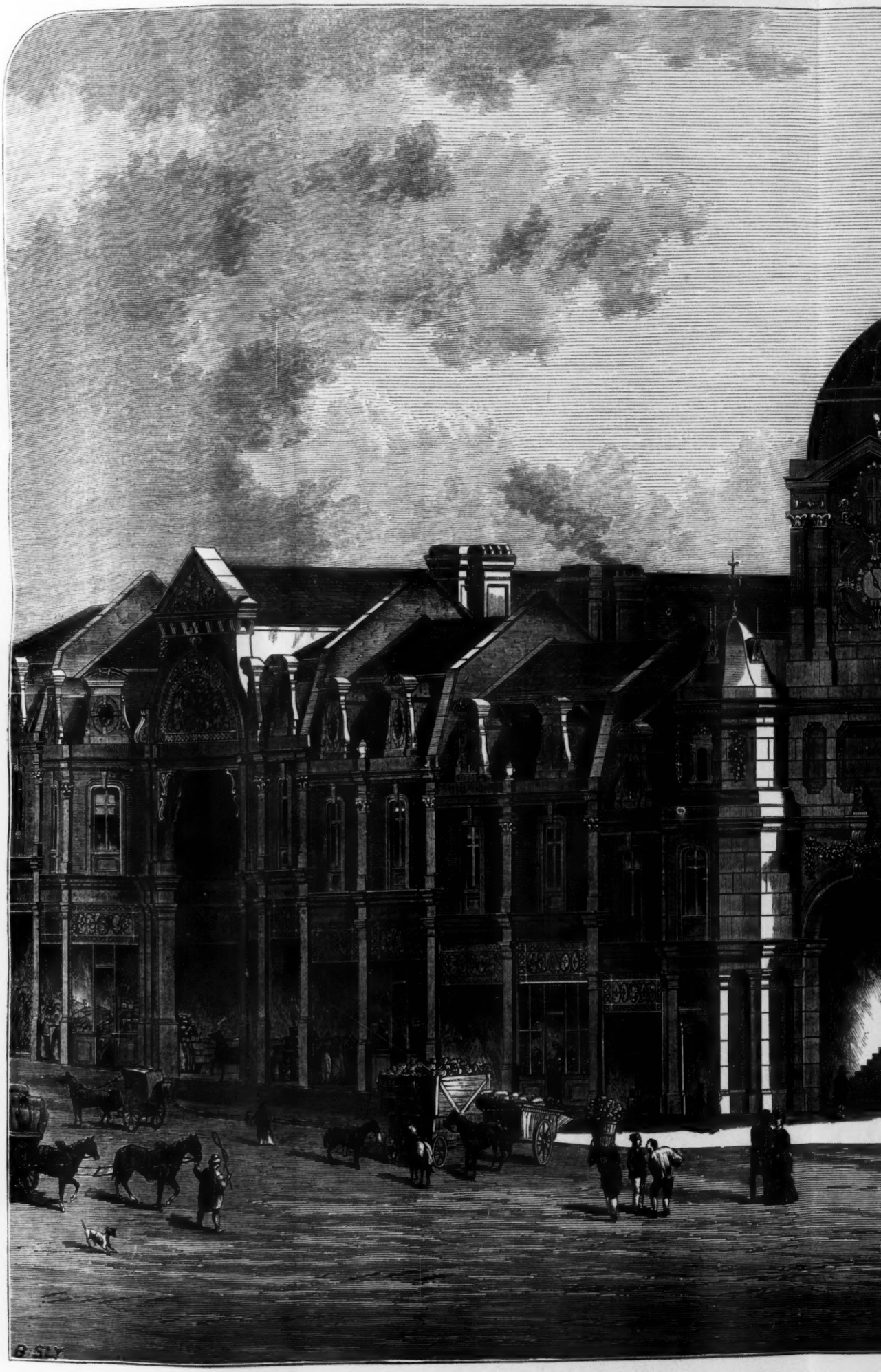
THE NEW THEATRE, GENEVA.——M. GOSS, ARCHITECT.

great *foyer* is remarkable, with its parqueted floor, its immense panels filled with mirrors, its elegant colonnades, its monumental mantelpiece, its superb caryatides, and especially its splendid ceiling. In a neighbouring smaller *foyer*, decorated in a coquettish style, is placed the statue, by Laplanche, representing Music, which obtained the Grand Prix d'Honneur at the Paris Salon of 1878. In the *foyer* of the third tier,—for each part of the house has its crush-room,—a statue of Victor Hugo has found a place.

The auditorium has been coloured light buff, and picked out with gold, the drapery being red velvet. It recalls to mind the large hall of the old Théâtre-Lyrique, with this difference, that the ceiling of the Théâtre-Lyrique was well lighted without a chandelier, while in the new theatre the lighting is effected solely by a very handsome lustre. This chandelier, which has 400 jets, weighs 4,000 kilogrammes (four tons), and is suspended by three iron cables, which have been tested up to 40,000 kilogrammes, and suffuses the hall with a soft yet clear light, and illuminates in a very happy manner the ceiling painted by M. Brisset, illustrating the triumph of Apollo. The covings are ornamented with fifteen medallions, also due to M. Brisset, and present the features of the following actors and actresses:—Talma, Mars, Perlet, Adrienne Lecouvreur, Thespis, Dejazet, Roscius, Rachel, Baron, Dugazon, Elleviou, Sophie Arnoult, Nourritt, Falcon, and Duprez.

The new theatre was opened on the 2nd of October last, by a gala representation, given in the presence of the Genevese and Federal authorities. The next day it was thrown open to the public, "Guillaume Tell" being presented, the choral societies of Geneva strengthening the chorus.

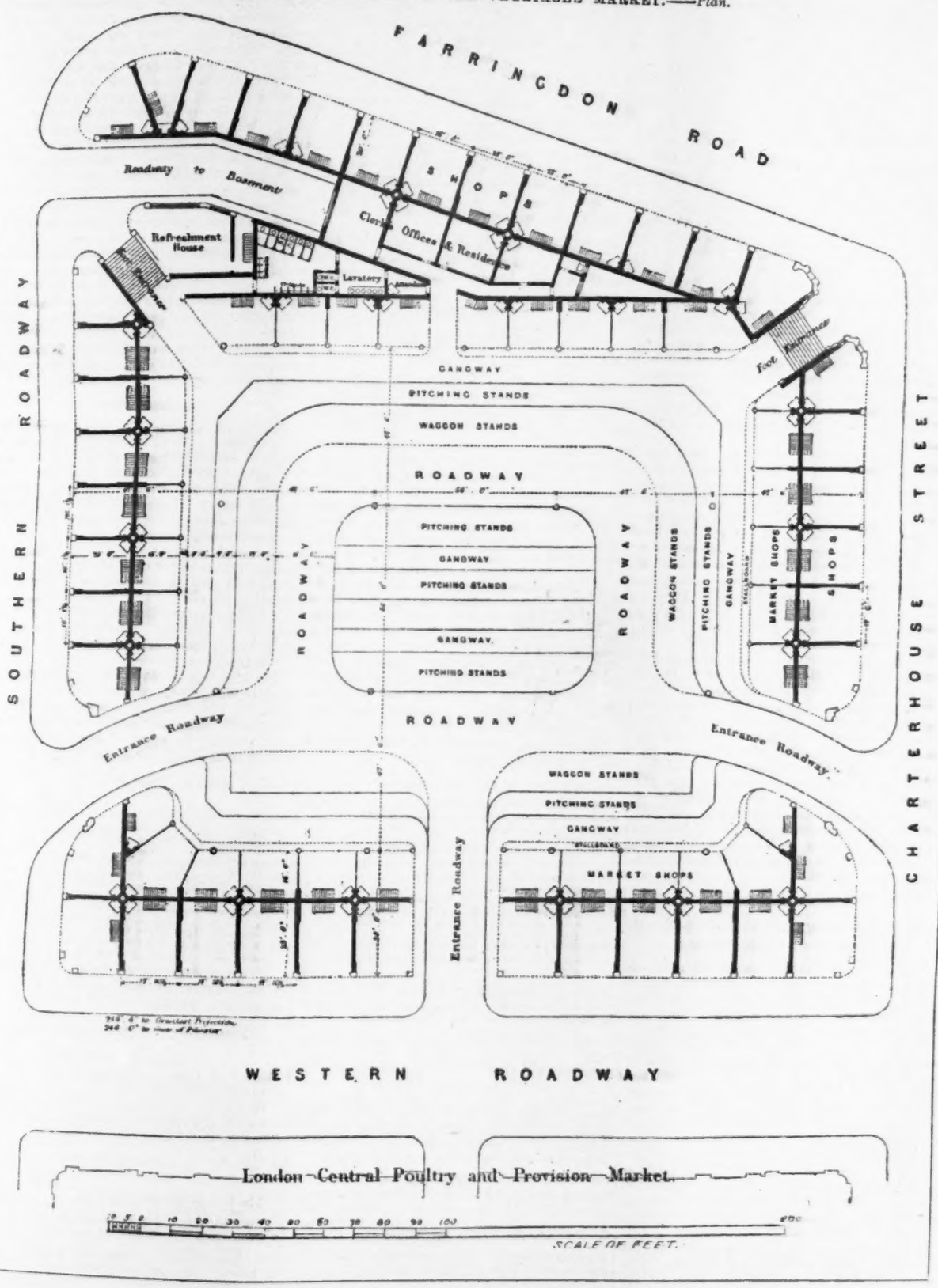
The old theatre, to which the new one succeeds, was constructed in 1784, being opened with the presentation of "Les Jeux de l'Amour et du Hasard," by Marivaux. Among the actors figured Fabre, surnamed "l'Églantine," because he was adorned with this flower in the Jeux-Floraux. He was the author of the popular song, "Il pleut, il pleut, bergère!" It is well known that Fabre l'Églantine afterwards acted upon another stage, in the tragedy of the Revolution, where figured also a director of the theatre of Geneva, named Collot-d'Herbois.



LONDON CENTRAL FRUIT AND VEGETABLE MARK

E MARKET.—Mr. Horace Jones (Architect to the Corporation), Architect.

LONDON CENTRAL FRUIT AND VEGETABLE MARKET.—*Plan.*



LONDON CENTRAL FRUIT AND VEGETABLE MARKET.

THE site for this new market is at the west end of the Central Poultry and Provision Market fronting the streets or roads,—Farringdon-road, Charterhouse-street, Western-roadway, and a new road on the south-side now being constructed, running from the south-west corner of the Central Poultry Market to the foot of Snow-hill, at its junction with Farringdon-road. The general principle adopted in the arrangement or plan of the market has been to make the main floor as nearly as possible the level of the Poultry Market, so as to make the entire range of central markets of which this will form the westernmost building, all readily approachable the one from the other. There being a difference of level of some 10 ft. between the Western and Farringdon roads, the main entrances to the market area are placed,—1st, that on the east opposite the western entrance to the Poultry Market; 2nd, that on the north, in Charterhouse-street, near the corner of the Western roadway; and, 3rd, that on the south, in the Southern roadway, in a corresponding position to that in Charterhouse-street.

The floor of the market will be level, a slight gradient being necessary only at the several entrances.

The plan of the market shows an area of nearly 44,000 ft. devoted to wholesale market purposes, surrounded by forty-one shops, fronting the four streets before mentioned, which can be used for retail or other purposes, and these occupy an area of some 16,800 ft. in addition.

The general or market area is approached by the three main or vehicular entrances, as before stated, and by two further entrances for foot-passengers from the Farringdon-road corners of Charterhouse-street and Southern roadway.

The market consists of a series of shops, thirty-three in number, having in front pitching-stands for goods and wagon stands; the whole approached by a roadway having a width of 18 ft. always clear for vehicular traffic. In the middle of the market area is a further arrangement for pitching stands, with an area of about 4,400 ft., including gangways. In roofing the market, the floor has been kept as clear and open as possible, the detached main roof supports or columns being sixteen in number, and the clear span of the roofs is 47 ft. 6 in. and 56 ft. respectively, with a centre octagonal cupola roof of 56 ft. diameter. The roofs are of light construction, with a range of glass louvres at the plate and ridge levels, affording an ample amount of light and air, so requisite for a market of this character, but materially excluding the prejudicial sun's glare. The height of the roofs generally will be 28 ft. to the level of the plate, and to the ridge of the louvres 45 ft., the central roof rising to a height of 70 ft.

At the south-west corner of the site a roadway-approach to the basement has been designed 20 ft. in width, and having a gradient of one in twenty; adjoining this roadway are the clerks' offices and residence, a refreshment-house, and the necessary lavatory and water-closet accommodation for the use of the market salesmen, &c.

The basement is arranged with a general area under the market, and two tiers of vaults under the outer shops fronting Farringdon-road and Charterhouse-street, and the height of this basement story will average 24 ft. The floor of the basement area is placed at the level of the adjacent railways, and the form of construction adopted renders it suitable for either market or railway purposes. The construction is of iron, with stancheons, 44 ft. and 20 ft. apart respectively with wrought-iron main girders, of the larger span, with subsidiary girders of the lesser one carrying the floor of the upper market.

The general appearance of the building externally will be as similar in character to the other markets as the altered requirements will permit, the style being Italian, and the materials used being Portland stone, and red Fareham bricks. The chief points of architectural effect are the three pedimented main entrances and the tower at the north-west angle of the building.

The works are being carried out from the designs and under the superintendence of Mr. Horace Jones, the architect to the Corporation; and the contractors for the building are Messrs. Mowlem & Co., of Westminster. The total cost of the market, including the land, will be about 300,000*l.*

THE MARY DATCHELOR NEW SCHOOL BUILDINGS AT CAMBERWELL.

LARGE new middle-class schools for girls are now in course of erection on a spacious plot of land in Camberwell-grove, in connexion with the Mary Datchelor Charity, originally identified with the parish of St. Andrew Undershaft, in the City. These schools, which will have accommodation for 600 girls, are pleasantly situated in the grounds of an old mansion which has been purchased by the trustees for the purpose, the mansion itself having for some time been used as the temporary school. The principal elevation of the building, which is in red brick, with Portland stone dressings, faces Camberwell-grove. It is 98 ft. in length, and 55 ft. in height, and contains two lofty stories besides the basement, which rises considerably above the ground line. The elevation is surmounted by a prominent central gable, with smaller gables on the sides. The central portion of the frontage, which contains the entrance, projects about 6 ft. beyond the rest of the elevation. A portion of the building is carried to a depth of upwards of 100 ft. in the rear for the purpose of admitting of the construction of a large dining-room in the basement, and a lecture-room of similar dimensions on the ground floor. The window and other dressings of the back elevation of the building consist of a material forming artificial stone, specially manufactured in a building erected on the spot for the purpose. The building will have a high-pitched roof, covered in with green slates.

The large dining-room in the basement is 86 ft. long and 45 ft. wide. Adjacent are a spacious kitchen and other rooms connected with the culinary department, whilst on the front portion of the basement are the teachers' cloak-room and adjoining apartments; also the children's lavatory and cloak-room, together with the mistress's lavatory. The ground-floor at the rear contains the lecture-room, which is of the same dimensions as the dining-room in the basement, and has a gallery at one end. On this floor, also, on each side of the principal entrance, are the head-mistress's room, 12 ft. by 18 ft.; also a waiting-room and a cloak-room. The entrance-hall is 46 ft. by 14 ft. long, leading to the secretary's room, and four class-rooms, 22 ft. by 19 ft. each. The upper floor also contains four class-rooms, of similar dimensions to those on the ground-floor, together with a library and committee-room, 20 ft. by 16 ft., with a master's and mistress's apartments on each side.

Mr. Chatfeild Clarke is the architect, and Mr. Grover, of the Wilton Works, Islington, the contractor. Mr. Joseph Wilkinson is clerk of the works.

CHINESE LABOUR.*

Chinese Scaffoldings.

THIS branch of our subject is well worthy of attention. It will be seen in the comparative tables of brickwork given in the previous article that 2s. 0½d. per yard is all that the necessary scaffoldings cost in China. Their thicker parts are constructed with fir-poles of about 3 in. diameter; the rest is all made of bamboos put together transversely and diagonally with rattan ties. The Chinese scaffolding-builders display wonderful ingenuity and great courage in putting together these somewhat extraordinary structures, which are so light that two or three men bring the materials for a day's work upon their backs, and yet so strong as to bear many workmen with perfect safety. In the case of a recent factory chimney of brick, 123 ft. high, the whole cost of scaffolding was 25*l.*, and of the chimney 275*l.*

The scaffolding was erected square all round the chimney, with a winding ascent of planking on cross bamboos. The work was of course done from the outside, and access to every part was afforded at the same time.

The following table shows the cost in detail of this light and convenient work:—

Table of Chinese Scaffoldings.

A. Bamboo worker. Wages per day	£0	1	6
B. Common single bamboo scaffolding as for building brick walls, &c., per square of wall	0	0	4½
C. Common price of bamboo leaf-sheds over buildings protecting them from the weather while in progress, per horizontal square, covered ..... from 8s. 4d. to	0	9	2
D. Single close matting upon roof, per square...	0	8	8
E. Double close matting, including upright poles, up to 30 ft. span, for verandah roofs, &c., per square	0	15	8
F. Single close matting, fixed vertically, including poles and bamboos, as to outsides of worksheds, per square	0	9	2
G. Room partitions, single, complete, per square	0	5	1
H. Matting only, for linings of rooms do.	0	2	10
I. Add extra labour to doors and flaps, do.	0	1	0
J. Bamboo matting, in large rolls, for roll-up sunshades, per square	0	12	6
K. Bamboo trellis fence, 3 ft. high, per yard run	0	0	10

The subject points next to the consideration of

Stonemasons' Work,

the conclusion drawn from which is that Hong-Kong granite is one-seventh the price of Cornish, while mason's labour in China is not much over one-third of its cost in England.

Table of Cost.

	At Home. s. d.	Hong-Kong. s. d.
Sandstones in the quarry, per foot cube, from 4d. to	1 6	—
Limestones, similarly.....from 6d. to	4 0	—
Granite, within three miles of the quarry at Aberdeen, cost, per foot cube.....	5 0	—
Ditto, in Cornwall	4 1	—
,, in Hong-Kong (as described)	—	0 6½
Granite set in block, per foot cube, from 4s. 7d. to	6 6	1 4

i.e. (cut to any scantling, not over 5 ft. long, or 15 cubic feet, beds and joints squared, the full depth measured net when set).

The *Labour on Granite* costs as follows:—

	At Home. s. d.	In China. s. d.
Setting blocks, per foot cube	0 6	0 2½
Plain work, per foot super., from 1s. 6d. to	3 0	0 5½
Sunk-work, axed, but untooled, from 3s. 6d. to	4 0	0 9
Plain work, circular ditto, from 3s. 10d. to	5 0	0 9
Moulded work, straight, from 3s. 10d. to	5 0	1 7½
Moulded work, circular.....from 4s. to	5 9	2 0

See p. 6, *ante*.

The *marble* of China is worthy of much attention, but has never yet been worked except in the roughest manner. At present it can only be procured thin, about 6 in. by 6 in. being the greatest scantling. There are white, red, and grey. The comparison of slab prices for pavement is roughly as follows:—¾-in. thick, 14½ in. by 14½ in. (a Chinese foot) laid at 1s. 2d., compared with 5s. 6d. to 7s. 7d. per foot at home.

There is hardly any limit to what might be done in China in marble by good workers, but the Chinese know nothing about it. As quarriers of stone they are clever. Almost as fine faces of granite are to be seen occasionally in their quarries as could be shown in England, but the laboriousness of their method, though accomplished with the greatest amount of perseverance, is almost distressing to the spectator. It need only be repeated that their tools and appliances are of the most primitive kind, their gunpowder half mixed with sand, and their chisels and crowbars so poor as to require re-pointing almost every hour. But with all these drawbacks, they produce really creditable work, and the French cathedral in Canton, built of granite, which has now been over thirteen years' in progress, speaks by no means badly for Chinese labour.

Carpenter's Work.

At this the Chinese seem to be specially in their element. When paid by the piece, they are to be seen labouring all day and half through the night. When paid by the day, they are to be seen idling and sleeping during any of the hours of labour. Their ability in this branch of work is pre-eminent, but their untrustworthiness is pre-eminently shameful.

The great wood of China is fir. Excellent timber is to be had of this kind, weighing 34 lb. to the cube foot, as compared with Riga at 30, Memel at 36, and Baltic at 40 lb. at home. Fir may be purchased in Canton in poles of all sizes, from 10-in. diameter downwards, and up to 18 ft. long, costing from 1½d. for 3-in. to 5d. for 8-in. diameter per foot run.

The operation of the Chinese native Customs renders Hong-Kong prices of necessity exorbitant, but the following table will show that it even then bears fair comparison with home rate, ordinary fir being of less than half the cost in Hong-Kong that it is in London.

Table of Cost of Timber delivered per foot cube.

	At Home. s. d.	In Hong-Kong. s. d.
Memel.....	2 9	—
Quebec red pine	2 9	—
Oregon pine .....from 2s. 3d. to	—	2 7
Ordinary fir	3 3	—
China (in the rough) .....from 1s. 3d. to	—	1 8
Yellow pine	2 6	—
Teak.....	5 8	—
,, ...from 4s. 9d. to	—	5 0
All kinds of hardwood from Manila, Singapore, and Burmah, of many qualities and names.....from 2s. 7½d. to	—	3 0

A comparison of the cost of "working" timber makes home work only some 50 per cent. higher than Chinese.

Table of Cost of "Working" Timber.

	At Home.	In Hong-Kong
Best fir, framed, rough, per foot cube	£0 3 9	£0 2 7½
¾-in. rough boarding, fir, per square	1 0 0	0 13 0½

In *Joiners'* work home prices for common work are again almost double the Chinese. The following is the table:—

Joiners' Work.

	At Home.	In Hong-Kong.
1. ¾-in. floors (edges shot only), China fir, per square.....	—	£0 17 4½
White spruce deal (same quality)	£1 0 0	—
2. Jamb linings to windows of the same materials, 1-in., plain, 4-panel, square, per super. foot	0 1 0	0 0 6½
3. Doors of 1¼-in. deal or China fir, square-framed, 2-panel, costs, per square foot	0 0 10	0 0 5½
4. Doors of 2 in. (4-panel bead and flush, both sides), per square foot.....	0 1 3½	0 1 1½

But it is at "small carpentry" and in furniture that the Chinese do best. Their work in this branch of the trade will not, it is true, compare either in strength or make with home work, but this is not from want of ability so much as from scamping. Could supervision be exercised results would be widely different, but the want of trustworthy foremen, whether Chinese or foreign, prevents detection and encourages deceit. The spirit of swindling is rampant among all Chinese, and the carpenters and builders are considered the lowest in the moral scale of tradesmen by all their countrymen;

but what they can do, if they will, bears very favourable comparison with the ordinary articles of home workmanship.

Ironmongery.

This trade is all learned by the Chinese from our home samples. Native houses in China have no such fittings as our own. Even hinges are quite unknown, wooden sockets and wooden draw-bolts of considerable ingenuity doing duty in every case. The bolts, locks, hinges, and fittings manufactured by Chinese in imitation of foreign goods are a constant source of annoyance to the house-builder. They may in general be detected by the absence of lacquer (in brass-work) and of finish, but are too frequently palmed off even upon the most watchful superintendent.

Similar difficulties are experienced regarding

Plumbing Work.

The Chinese are, as is known, apt pupils, and some of the native plumbers in Hong-Kong, taught by the artificers of the Royal Engineers and others, are workmen of considerable ability, but all these things are foreign-learnt.

There is likewise no native

Plastering.

All this is made-work for foreign requirements. The Chinese persist in measuring all such work by the square and not by the yard, and the general cost is little more than half-home rates. The comparative prices of plastering work are as follow:—

	At Home.	In Hong-Kong.
	s. d.	s. d.
Render, two coats and set, per square yard	1 0	0 7½
Lathing, plaster, float, and set, do.	1 6	1 3½
Plasterer per day	8 9	1 4½
Labourer to plasterer, per day	5 10	0 9½

No window-glass is used by the Chinese in native houses, and there are, of course, no glaziers, excepting such as learn to supply foreign wants, which they do well when given good materials. Cheap German glass is, however, all that can now be bought in China without special orders, and this, often of most inferior quality, even then costs double the home prices.

But of all kinds of Chinese workmen the greatest rogues are the

Painters.

To give details of their mixtures of pig's blood and lime to serve for sizing, or soot and chalk for distemper, would be too ridiculous. Such things as brushes are unknown among Chinese painters; and hand-daubing with rags is universal. The mixture of ground nut-oil, a native production of a light muddy colour with linseed oil, and the use of *half*-boiled oil to produce stickiness in varnish, and enforce early repetition of the painting, are every-day practices.

Painting is paid for in Hong-Kong at 3d. a yard, flat, for two coats, as against 8d. at home; and the Chinese painter receives 1s. 4½d. per day, whilst in England the wages are 7s. 11d.

It is a pleasure to turn to the work of the

Smith and Founder.

At this work the Chinese are very successful. Ordinary small castings are done in Hong-Kong by native smiths, very creditably, at from 3d. to 5d. a pound, as against about 6d. at home. Foreign founders in Hong-Kong and Shanghai (notably Messrs. Inglis & Co.), employing Chinese hands, turn out good work in small castings, such as columns, gates, &c.; but nothing beyond about 18 ft. in length, excepting at exorbitant prices. Work of magnitude, even in columns and girders, is cheaper from home.

The following is a specimen-estimate of eight cast-iron columns recently fixed in the Hong-Kong city hall:—

"Length of column, 23 ft. 8 in.; diameter of foot, 11 in.; of neck, 9 in.; thickness of metal, 1¼ in."

Two local tenders were received, and one from Messrs. Andrew Handyside & Co., of Derby:—

No. 1. Inglis & Co., Hong-Kong ..... each	£28 17 6
No. 2. A Chinaman ..... each	25 0 0
No. 3. Handyside & Co., Derby (accepted), as laid down in Hong-Kong	11 11 10

This last was but half the Chinese tenders; but it must be recollected that 23 ft. 8 in. was much too great a length for local appliances without extraordinary shifts. In smaller work, however, Chinese productions compare in cheapness as in execution very favourably with home goods.

Having now exhausted the list of ordinary building trades, it will be well to generalise the proportionate cost of work in the aggregate in London and China. Mr. Brassey gives, on page 274 of his "Lectures on the Labour Question," a detailed table of the cost of materials and labour necessary in 1875 for the construction of a house pulled down to provide for the Metropolitan Railway Extension. In 1865 the same cost 5,000*l.*, but in 1875 the cost of labour and materials had so increased that 5,624*l.* was the estimate for its construction.

It is proposed to select the period of 1875, deduce the cost of labour and materials coming under each trade, and side by side place the present cost of similar work in China. The result is that what costs 5,624*l.* in London costs but 3,945*l.* in Hong-Kong, or 29 per cent. less.

Trade.	Prices. Home.	Prices. China.	Ratio of Prices.	Labour and Materials. At Home.	Labour and Materials. In China.
	£ s. d.	£ s. d.		£ s. d.	£ s. d.
1. Excavator	0 0 8½ yard.	0 0 6	As 33 : 24	125 0 0	91 0 0
2. Bricklayer	14 10 0 rod.	6 5 0	„ 58 : 25	1,181 0 0	509 0 0
3. Mason	0 6 6 cubic foot.	0 1 3¾	„ 104 : 21	995 0 0	200 0 0
4. Slater	same.	same.	„ 1 : 1	61 0 0	61 0 0
5. Carpenter	0 3 9 cubic foot.	0 2 7½	„ 10 : 7	445 0 0	311 0 0
6. Joiner	1 0 0 square.	0 17 4½	„ 480 : 417	947 0 0	821 0 0
7. Smith and Founder	0 0 6 lb.	0 1 0	„ 1 : 2	364 0 0	728 0 0
8. Plumber	same.	same.	„ 1 : 1	409 0 0	409 0 0
9. Plasterer	0 1 0 square yd.	0 0 7½	„ 24 : 15	481 0 0	300 0 0
10. Glazier	0 0 3½ foot.	0 0 5	„ 7 : 10	186 0 0	265 0 0
11. Painter	0 0 8 yard.	0 0 3	„ 8 : 3	165 0 0	62 0 0
				£5,359 0 0	£3,757 0 0
Add fees, &c., 5 per cent				265 0 0	181 0 0
Total cost				£5,624 0 0	£3,945 0 0

Having thus roughly generalised the comparison of labour and materials, it will not be out of place to generalise the remarks made on the labourers themselves by considering them as represented, though unworthily, by their master, the native contractor. A clever Chinese workman having risen to the position of a foreman, and gained some insight into the general conduct of business, selects a busy time,—perhaps the beginning of a new year, or the occasion of a disastrus fire, or of a typhoon, or, for some other reason, a lucky day,—and having gained the favour of a few friends of influence or of property, he suddenly leaves his master's employ, and, without much outward opposition from his former principal, sets up a new shop.

If a man of ordinary ability, he invariably devotes his whole time and energy to the successful accomplishment of his first few jobs. The first work of a newly-established contractor is generally excellent in every respect. He is a needy man, working on borrowed capital, and so all goes well. After awhile, his first success leads to more work. He pays off his debt, and by and by makes a little money, and *then comes a change.*

As he grows prosperous, so he grows careless. As he makes profits, so he desires to increase those profits by subtlety. As he rises in the world, so, too often, he thinks lightly of his earlier friends. Having made himself a name, he straightway proceeds to lose it as fast as he can. He takes to excess of opium, marries many wives, drinks native spirits in abundance, and finally he finds himself but one in the great body of pushing, struggling seekers after foreign prey, with which such places as Hong-Kong abound.

Chinese contractors are known, whom the kindness of foreign friends has set up in business, provided with work, with premises, with credit, and who owe that foreign friend their all, and yet having made by his kindness that which they possess, such men after a few years' prosperity will work day and night to swindle their patrons in the most petty transactions of business.

It was but the other day that an estimate for repairs to a building was being made with a man of this kind. The measurements of retiling in a roof were carefully put down, and there were left several small holes to be lumped together. "How much have you allowed for these holes?" asked the foreigner. "Is it three dollars?" "No," said the Chinese contractor, "five dollars." "Let me see your book," replied the first. "Oh, no," said the Chinaman, "I read it wrong; it is four." The foreigner took the book from the contractor's hands, and found *two dollars* written. The native laughed as the only result of his detection; for the sense of shame is often wanting in the Chinese mind.

In a surveyor's office in Hong Kong there was lately a list of ninety-five native contractors, who came from time to time for business, and it is difficult to believe that in any place of the same size there could be found ninety-five more untrustworthy persons gathered together in any trade. Craft and subtlety are so thoroughly imbued in the character of many Chinamen that they really fail to understand the distinction between straightforwardness and lying, and of all Chinese, the building contractor is the least reliable.

But what shall be said of their ability? Natives could be pointed out without difficulty whose opinion upon matters of safety and expediency in the most difficult building operations would be taken by many people long before that of any European architect, and who put the foreign professional man to shame. There is a practical thoroughness about the knowledge of work which some of these men evince which, when brought out by emergency, is admirable, but so long as it is combined with untrustworthy motives it can be of little avail unsupervised.

Before bringing this paper to a conclusion, testimony must be borne to the manner in which some of the main theories on the subject of labour laid down by Mr. Brassey in his books are corroborated in China.

1. "That the cost of labour cannot be determined by the rate of wages."

A labourer in China receives 8d. a day, and at home 4s., but a yard of excavation which costs 6d. in China can be done at home for 8¾d. Wages are as 1 to 6, work as 1 to 1½.

2. "Low wages and poor fare produce indifferent work."

Thus, 4½ Chinamen fed on rice and cabbage do no more digging in a day than one home navvy living on beef and beer.

3. A general uniformity in the cost of labour *would* prevail were it not for the superior industry of some races over others.

The 2¾d. per yard in favour of the cheapness of excavation in China over that in London is due to this special cause. Were the English navvy as patient and persevering as his Chinese brother, the cost would be the same.

4. Lastly, in proportion as skill and manual dexterity are required, so the differences in the cost of constructing engineering works disappear.

(*a.*) The proportion of usefulness of a common excavator in China and in England is as 1 to 4½.

(*b.*) That of a bricklayer in the same places is as 1 to 1¾.

(*c.*) In carpenter's work the ratio still more nearly approaches uniformity. The cost of timber worked being as 2s. 7½d. against 3s. 9d., or 2 to 3.

(*d.*) In joinery, the approximation in skilled work is more striking. A common door of 1¾-in. fir (square-framed two-panel) costs 5½d. per square foot in China as against 10d. at home, or 7 to 14; but a *good* door, four-panel, 2-in. fir (bead and flush both sides), is 1s. 1½d. compared with 1s. 3½d., or as 7 to 8. This is undoubted proof that *as the demand for skill increases, so prices have an approaching tendency* in all countries.

Finally.—It is, perhaps, the province of the reader to draw conclusions from the facts of this paper, but one remark must be ventured. Mr. Brassey, in the last chapter of his "Lectures on the Labour Question," draws a melancholy picture of the decay of the English workman. At p. 273, he says, "Beyond all doubt men at the present time do very little more than half the work for 9d. per hour that they formerly did

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for 6d." At p. 272 he observes, "All the advantages of steam power (in a case at York) were more than neutralised by the indolence of the men." Mr. Lucas, the contractor, in the discussion on Mr. Brassey's lecture before the Royal Institute of British Architects, said, "All Messrs. Howell and Potter (the trade unionists) may say, if they talked till Doomsday, will not alter the fact that the men do not now do a day's work."

Mr. Street, the architect, closes the above discussion (p. 308) in these words, "As a rule men do not feel it their duty to do the greatest amount of work in the best way and in the shortest time."

If this state of things at home continues, the day, for all we know, may not be so far distant when, time having softened mutual prejudices, we shall see bamboo scaffoldings erected in the streets of London crowded with industrious Chinamen, governed by the laws of no English trade unions or amalgamated societies, and who, as a rule, prefer piece-work to day-labour. Climatic influences would tell but little, for people at home by no means realise the fact that even in Hong-Kong, which is almost the southern extremity of China, coal fires are almost as much needed for four months of the year as they are in London.

The moral character of the Chinese is, no doubt, against them; but industry, patience, and untiring perseverance go far to condone for want of straightforwardness and truth, which, after all, are by no means so absent in the workmen as in their native masters.

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BUDDHIST ARCHITECTURE IN THE JELLALABAD VALLEY.*

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE extension of our knowledge of Indian architecture to the region of the Indus has been productive of important results. The space of time is but short since we were in all but complete ignorance of the ancient remains of this part of the world. Twenty years ago scarcely any materials existed from which an idea could be formed of the styles of architecture that had been practised there in the past. Now we have considerable data upon which to work, and already some valuable deductions have been reached. Standing out prominently among the points arrived at is the fact of a Greek influence having filtered through the Bactrian provinces to the Indus, which is crossed and penetrated as far as the Punjab and Cashmere,—how much further is a point not yet worked out. This fact is of very great importance as bearing on Indian architecture, but it is at the same time of equal importance to the history of Greek art. We already knew the vitality which the architecture of Greece possessed, and which carried it to distant regions at an early date; still we have a further proof, in this now accepted theory, of its remarkable power, and that like the Macedonian hero, it carried its conquests beyond the Indus. Along with this we have another point now equally well established, and of high value to the art historian, which is, that previously to the Greek there was an influence brought from the Euphrates valley, most probably from ancient Persia; this not only crossed the Indus, but penetrated at least as far south into India as Karli on the west, and Buddha Gaya on the east. The bell-shaped capitals in the Karli Cave, and on the Buddhist Lats, as well as in the sculptures at Bilsa, and other places, had often been identified with the well-known Persepolitan examples, but all doubt now ceases regarding their source; that point having been made clear from the details found in connexion with them on the western bank of the Indus and in Afghanistan.

It has been very common for writers to affirm that all remarkable things in the past had their origin in India. This is now exploded. All inquiries seem to tend to the opposite conclusion, that religions, conquerors, ideas, art, and architecture, all crossed the Indus into India, and that, with the exception of the Buddhist propaganda, nothing ever went in the other direction. Perhaps no better illustration of this could be given than the invasion of India by the two styles of art just mentioned. Here we have reflected light on the history of the region, and we find light which is valuable as historical data, as well as being an addition to our knowledge of art.

The first suggestion of the existence of Greek art in the region of the Indus is in the account of Elphinstone's mission to Cabul. In 1808, while returning through the Punjaub, the members of the mission visited the Manikyala Tope, and remarked the Greek character of some of its parts. Professor Wilson, who refers to this in the "Ariana Antiqua," p. 31, seems to discard the opinion, because, as he says, "it has been since fully proved the work of Indian artists." In 1860 I visited this well-known monument and made sketches of it, and the result of doing so was to leave no doubt in my own mind as to the Greek origin of its details. On my return to London in 1862 I read a paper on Indian architecture to the Royal Institute of British Architects, in which I stated that the capitals were Corinthian; I exhibited at the same time the section of a frieze, and I affirmed in the paper that it was sufficient in itself to establish the Classic character of the architecture. The year following I visited Cashmere, and these conclusions of a Greek influence were confirmed by finding traces of Doric, and also of what I took to be Ionic, but of this last I did not at the time feel quite so certain. References to these will be found in my paper above referred to. In the Lahore Museum there is the base of a column found in 1864 at Shah ki dera, the site of the ancient Taxila, that is on the east side of the Indus, and it is so purely Greek that its character cannot be doubted. That these were not exceptional and isolated instances was at last fully established by the explorations in the Yuzufzai district, situated on the west bank of the Indus, north-east of Peshawer. The explorations at Takht-i-Bahi, Jamal Garhi, and other places in that region, which were carried on about ten years ago, resulted in the discovery of Corinthian capitals which brought conviction home to every one. Numerous sculptures were also found in which the pose of the figures, as well as the treatment of the drapery, and other details, bore clear evidence of an influence from classic Greek sources. These sculptures are now in the Lahore Museum, and they form a unique collection in connexion with this subject.

These details of progress all refer to ground within what was the British frontier before the present Afghan war began. Beyond the frontier our knowlege was almost a blank. Afghanistan has not been a favourite country for travellers; very few have visited it, and this is the reason why we possess such scanty materials regarding its architectural remains. Masson is about our only authority, and his explorations were made to procure coins. I have seen the excavations which he made in the Jellalabad valley, and he does not seem to have made a single effort in any case to bring the architecture to light. He had been in Afghanistan for some time before 1834, and remained there until the first Afghan war; hence he must have been about ten years in the country. At that period little or nothing was known of Buddhist architecture, and the character of the mounds was evidently an enigma to him. His drawings are so small that no details can be made out from them. His works prove that he was a person of considerable ability, and the great number of coins which he collected were of the highest value as bearing on the ancient history of the region. I may say that, previously to the present Afghan war, our knowledge of Indian architecture did not extend beyond the entrance to the Khyber Pass. Being conscious that such was the case, the chance of obtaining information on the subject, however small it might be, was one of the inducements which led me to follow our troops in the campaign, and I think I shall place before you to-night sufficient materials by which our knowledge on this subject will be extended as far at least as the limits of the Jellalabad Valley.

I joined the head-quarters of General Sir Samuel Browne's force at Jamrood on the 20th of November, 1878. On the road to this place, about half way from Peshawer, I passed Hari Sing Ke Boorj, where there are considerable remains in the form of mounds of the Buddhist period. The Fort of Jamrood is, I believe, built over the remains of an old tope; General van Cortlandt, who superintended the construction of the fort in 1837, tells me that it was built over an ancient mound. Lieut. Bartram, R.E., gave me sketches of some mouldings of the old masonry which he found projecting at one place through the later walls of the fort.

On the morning of the 22nd of November I climbed the steep ascent and entered the fort of Ali Musjid with the General and his staff, and here for the first time I saw the peculiar kind of masonry which belongs to the Buddhist period in Afghanistan, and which I shall refer to as "Buddhist masonry." The part of the fort which our guns had bombarded the day before was of late construction. The hill being partly isolated, there is a long wall on its western side which our fire did not touch, and which is wholly of this Buddhist masonry. The character of this kind of building is so marked that it is easily recognised. Rudely-squared stones are placed at intervals, with slates built in between each stone; a continuous layer of slates is then made forming a course in itself, and on this is placed the next course of stones with slate between them again, the whole presenting the appearance of a diaper pattern. What was the object of this peculiar kind of building is not at all clear. The only suggestion I can make is, that as earthquakes are not unknown in the region, it may have been adopted with a view to flexibility. I cannot say that this theory is a satisfactory one, but it is the only motive I can as yet suggest. There is an ample supply of slate in the mountains of Afghanistan, and this may have led to its use as building material. The quantity of slate varies considerably in this Buddhist masonry, but it always forms by far the greater part of the superficies of the wall. In the Barabat Tope it was nearly all slate, and I saw other walls of the same kind. At Chardeh there is a tope with only a small fragment of its outer surface remaining, and in this the stones were neatly squared, with no slate between; there was only a course of slate between each course of stone. This Buddhist masonry is found in the Yuzufzai country, but I have not heard of it on the east of the Indus, and I think it may be stated with confidence that this manner of building did not come from India. Sir Henry Rawlinson visited Ecbatana, in Northern Media, in 1838, and in describing its walls he says:—"The breadth of the wall is 12 ft., the outer facing being composed of hewn blocks of stone about 14 in. deep and 2 ft. in length, alternating with thin stones laid edgeways and perpendicularly between them; and the whole being fitted with extreme care and nicety." I do not feel quite sure as to how these words ought to be understood, but they suggest a style of building wonderfully like the Buddhist masonry of Afghanistan. The mode of placing the thin stones between the larger ones may not have been precisely the same as that followed towards the Indus, and yet both may turn out to be only varieties of a masonry which was common to the whole region between where each is found. It was only the "outer facing" of the wall at Ecbatana which had this character. Sir Henry says that "the interior is filled up with huge unhewn blocks imbedded in a lime cement." It is the same with the Buddhist masonry, the outer surface only is built with it, the interior is formed of rude stones, often water-worn boulders, imbedded in mud, the whole forming a solid mass. These identities are very striking, and there is nothing improbable in the supposition that if such a mode of construction was common to the hill countries on the east of the Euphrates, where the material could be easily obtained, the style may have been carried as far as the Indus as early as the time of Darius, or at whatever date we may give to the arrival of the Persian style of architecture in India. Careful inspection of ancient structures to the west and north of Kabul, if any exist, will be the only means of giving us safe data on this subject.

A peculiar manner of building does not necessarily change with the religion of the locality where it exists, and it is quite possible that the Buddhist masonry may not have altogether ceased with the downfall of Buddhism. Although recognising this rule, yet I should be inclined to the opinion that the Mahomedans did not continue the style in the Jellalabad valley or the Khyber Pass, and hence I take it that the Buddhist wall in the Fort of Ali Musjid is as old as the Buddhist period. Whether it was originally a religious establishment or a fortified position is somewhat doubtful. . . . .

After passing the grand rocky gorge above Ali Musjid the Kyber Pass begins to open, and at Lalabeg it widens into a valley, with villages and flat cultivated land. It was when approaching this that I got the first sight of the Ishpola Tope. It stands on the summit of a mass of

* From a paper by Mr. William Simpson, F.R.G.S., read at the meeting of the Institute on Monday evening last, as elsewhere mentioned.

rock, which projects into the valley, and our road passes close under it. The effect of this fine monument dominating over the plain, and surrounded with picturesque hills, is very striking. Its contrast with the mud villages of the present day tells as plainly as words could of a past when the country was in a flourishing condition, when there was wealth, and that art and architecture were then not unknown in the region. It may be stated here that, in the present day, Afghanistan has fallen low in these pursuits. Houses are formed of mud, and the carpentry of doors and windows is of the rudest description. I saw the ruins of a brick house at Jellalabad, but at present no structures seem to be built of this material. The walls of Jellalabad are all of mud, and the wooden gates would be sure of the first prize if it were to be given for the worst kind of work. As for art, there did not appear to be anything of the kind in the country. There are, here and there, a few Hindoos who make gold and silver ornaments; but their work is poor, and of the coarsest character. I did not visit Ghuzni, which has fine buildings erected since the Mahommedan period, but from Jamrood to Gundamuck there is not a vestige of art or architecture to be found dating since the worship of Buddha ceased. In the present day these attendants of civilisation have simply become extinct, and have no existence even in their ruder forms. In such a country you can imagine the effect produced by the Ishpola Tope. I had no means of measuring it, but should say it could not be much less than the size of the Manikyala Tope, which is close upon 130 ft. in diameter, and to which it bears a closer resemblance than the topes in the Jellalabad valley. This results from the cylindrical portion of it being much less in height than those of the latter place. The dome is still nearly complete on the south side. It differs conspicuously from the Manikyala Tope, in having a square base, which is one of the marked characteristics of Jellalabad examples. This square base has fourteen pilasters on each side. Three of the spaces between the pilasters were recesses in which I suppose there had been sitting figures of Buddha. At the north-east corner there is a retaining-wall, which is a good specimen of Buddhist masonry, made to support the monument on that side, where the rocky surface was lower than the other corner. The capitals of the pilasters are Corinthian. There are no pilasters on the circular part of the tope. On my return from Gundamuck, in June, I made a second inspection of the remains, and found that some one had made excavations. The stair which led up to the top of the square base was partly cleared; it approaches from the north. Round the lowest member of the base had also been exposed a continuous row of small sitting Buddhist figures, about 18 in. high, placed so close that they touched each other. The remains of the Vihara were quite distinct on the side of the hill behind. In some parts the walls stood a considerable height above the ground. In one or two places I noticed the circular courses of the masonry of small topes, one of which was about 6 ft. in diameter. One of the villages near to the tope is built on the remains of Buddhist walls; but what the place had formerly been it was impossible to determine. . . . .

The march from Chardeh brought us to Ali Bogan, at the eastern end of the Jellalabad valley, and the next day we went on to Jellalabad; that was on the 20th of December, remaining there in camp till the 12th of April, and it was the long stay at that place, resulting from the lull in the operations, which enabled me to visit nearly all the remains, and at the same time to carry on explorations at one or two of them.

The valley is about nineteen miles from east to west, a lateral group of hills at Girdi Kas separating it from the plain of Chardeh on the east; the Sia Koh Range forming its western barriers, to the north-west of which is the district of Lughman. Away to the south is the Suffaid Koh Range, with its long line of snowy peaks, and on the north is the remarkable and beautiful mountain, called the Ram Koond, which was white on its summit during the most of our stay. If the Jellalabad valley had more trees and cultivation, which, I believe, was its condition in the days when Buddha was worshipped there, it would be one of the loveliest spots on earth,—a sort of Eden. The quantity of Buddhist remains is one of the reasons why I suppose there must have been more of the soil cultivated in former times than now. The population of monks who lived in these places must have outnumbered by many times the present inhabitants, and this implies a larger food supply. The construction of the monasteries, with large and costly topes, all tells of a wealth which is no longer to be found there, and their decorations are evidences that art was practised. We know from the Chinese pilgrim, Fah Hian, that there was a monastery at Hada "entirely covered with plates of gold." The seven precious substances are constantly mentioned as the decorative materials of the structures. These were gold, silver, lapis lazuli, crystal, cornelian, coral, and ruby. Precious and veined stones were also used. I found some remnants of gilding, which is confirmative so far of these accounts. From what I have myself seen I should say that most of the buildings were thickly coated with plaster, and decorated with bright colours,—red and yellow being the predominating tints. . . . . .

Masson counted the topes in the Jellalabad valley, and gives the result as a definite number. Here, I think, he made a great mistake. He only included those on which he found fragments of their structure remaining, for he made an imaginary distinction between topes and tumuli. He was not acquainted with the Buddhist system, and that the ascetics had viharas or monasteries, in which they lived, hence his being unable to separate the mounds formed by these buildings from the mounds of the topes. This is the reason that there are yet in the Jellalabad valley the remains of topes in the condition of mounds, which escaped the operations of his industrious activity. The Ahin Posh Tope, which I explored, might be classed as a second class one, and being apparently only a heap of earth, he never touched it. On the site of the ancient Nagarahara is another one of the largest size, but it presented only the appearance of a mass of water-worn stones, and thus it escaped his attention. Had he excavated for the architecture he would not have attempted an enumeration of the topes. As I have just stated, there were large topes which he did not include, and I believe there are monuments of this kind of every size, some being only a few feet in diameter, and such has been their quantity, that even when they were perfect above ground it would have been a long piece of work to have determined the exact number, and now it is impossible. Every monastery, in addition to its larger tope, had in addition numerous small ones of various sizes. In conjunction with one or two officers we subscribed a few rupees and had a small exploration carried on at Hada. This was close to one of the larger topes which had an extensive chasm in its side,—most probably made by Masson; our operations did not extend over a great space, still we cleared out part of what had been a tope 29 ft. in diameter, and it was surrounded by a series of smaller topes, about 4 ft. or 5 ft. in diameter. Here we found some interesting fragments of sculpture, and the number of plaster figures embedded in the earth, and close to the surface, was a matter of surprise to us all. Our very slight experience there made it evident that systematic excavations would produce good results, and I take this opportunity of expressing the hope that these will be yet carried out.

As there may be some who have not given much attention to Indian architecture, it may be as well to explain what a tope is. Its genealogy may be thus given. The primitive grave heap became a mound; stones were added, producing the cairn, the stones of the cairn were arranged in various ways, and at last were built into a structure. From this last result most probably grew the seven-storied tower of the Euphrates valley, the pyramid of Egypt, and the Buddhist tope. It will thus be seen that the tope belongs to an ancient and most important branch of architectural development. In the north of China the heaped-up conical mound of earth is still the form of sepulchre followed; and that of the Emperor Yung-lo, the most important of the Ming tombs, north of Peking, of which I laid plans before this Society in December, 1873, is a large mound, half a mile in circumference, partly built all round with a wall about 20 ft. high, giving us an approach to the tope. I mention this as showing the possible transformation from the mound into a wholly-built structure, for we have as yet no reliable evidence as to what the tope was in the pre-Buddhist time in India. Whether the tope existed or not at the date of Nirvana we cannot tell. Buddhist tradition indicates that they were constructed at that epoch, but that is not a reliable basis to use alone as a foundation for theory. At the time of Asoka, which according to the accepted chronology is about three centuries after the death of Buddha, these monuments appear as being regularly constructed after an established style of architecture. At that date in India they were solid hemispherical domes, surmounted by a tee, over which were placed the symbolical umbrellas. The one at Sanchi, known as the Bilsah Tope, being perhaps the best example to refer to. There is a small model of this monument in the South Kensington Museum, but it is to be regretted that it should be incomplete, as it wants the tee and the umbrellas. On the east of the gates, exhibited in the same room with it, sculptured representations can be seen with all these details. The Manikyala Tope in the Punjab, already referred to, is another illustration of the hemispherical form.

On crossing the Indus a marked peculiarity appears, and that is the existence of a square base. In the Sanchi Tope there is a circular ledge, 14 ft. above the surface, with stairs leading up to it, showing that it related to some function at the ceremonies. At Manikyala this feature is very prominent; it is approached by four broad flights of steps from the four cardinal points. There are the remains of some smaller topes at this place, and two of them, known as Makam-ka-Pind and Sonala Pind, had both square bases. In the Yuzufzai country there are the remains of a tope with a round base at Jamal Garhi, and one with a square base at Takht-i-Bahi. After entering the Khyber the circular form disappears, and in every case, so far as I could judge by what I saw, the square base was the rule.

This square base seems to me to be a very important feature of the tope in the Indus valley and Afghanistan. There must have been some influence from which it originated, and if this could be followed up and the sources explained from which it sprang, a new light might be brought to bear on a subject we are much in the dark about. Although not in the direction here indicated, suggestions have been developing themselves from this architectural feature. In a communication I before made in connexion with the Buddhist remains of Afghanistan, it was pointed out that the Chortens, or topes, erected by the Lamas or Buddhist monks in Tibet, have a square base, which is a very prominent feature belonging to them. I pointed out what is highly probable, that they derived this form from Afghanistan, or, as I expressed it,—"from the right bank of the Indus and not from the left." There was added the suggestion that this might prove important as showing the probability of the Buddhist propaganda having first crossed into Afghanistan before it penetrated into Tibet. What is here hinted at as only a possibility, resulting from a peculiarity of architecture, Colonel Yule confirms as being perfectly historical, and I am indebted to that gentleman for some references on the subject. They are from Koeppen, who states that the first Buddhist king of Tibet was Srong-tsan-Gampo, who in 632 A.D. began the work of conversion and establishment. He sent his minister, Thu-mi Sambhola, with sixteen companions, to India to bring back books and doctrines. It is not stated to what part of India they went, but Koeppen says that:—"Tibet received its Buddhism especially from regions in which this cultus,"—that of Avalokitésvara,—"flourished, such as Kashmir, Nepaul, and Udayâna," vol. ii., p. 61. This Udayâna is a region on the right bank of the Indus, between the Khyber and Cashmere, the present Swat and Yuzufzai country. The same author also adds that Padma Sambhava, who is still the most famous apostle of Buddhism in Tibet, came from Udayâna in the eighth century. In stating these matters I am not forgetting that missions were sent out from India at the close of the third Synod, in 241 B.C., to the Himalayas, as well as to Gandhara and Cashmere. Whatever these missions may have done, they did not take designs for topes with them from Pataliputra, or if they did, they were not followed in Tibet. I think that as the Indus valley was a more constant route of communication than any other point in the south-east of the Himalayas, the connexion between Udayâna and Tibet would be kept up better by that line than by any other, and by this route apostles, doctrines, and architecture would naturally pass. The date of Srong-tsan-Gampo was the very time when Hiouen Thsang was in India, and talking of the

magnificence of Bactrian architecture as far south as Amaravati. The most splendid tope in India at that time was at Peshawer, and the Peshawer valley was full of viharas and topes, and the fame of these monuments would be enough in itself to carry the style of architecture into new regions where it was desired for.

I have already mentioned the mound graves of Northern China, and an idea has suggested itself to me about them in relation to the square base. Under the conical heap of earth the Chinaman forms a square base of the same material. The square form is *yang*, and the round heap is *yin*. These are the dual powers of such profound symbolic significance in Chinese ideas. Whether these ideas extended westward or not I cannot tell, I think that sepulchral mounds exist all through Tartary; but if the square base of the Chinese grave could be traced towards the Hindoo Koosh, the origin we seek would be explained. The Turanian invaders, the Su and the Yuchi, who overthrew the Greek rule in Bactria, and under whom Buddhism flourished in Afghanistan, may have brought the form and constructed it with the prevailing style of architecture in the locality.

The word "tope" is understood to be derived from the Sanscrit of *stupo*, the *s* having been dropped out. The term was first used in reference to the Afghanistan monuments, from which region, I think, the word came. Masson uses "tappa" as an Afghan name in relation to both topes and mounds, and my working parties of natives seemed familiar with it. The Turkish word "tepé," which is applied to all mounds natural or artificial, is so close upon this that it raises a question of identity. As far west as the Troad to the east bank of the Euphrates this Turkish term may be found, and I suspect that "tappa" is only the same word, but I cannot pretend to determine the point. The Afghans have another title for all mounds or heaps. It is "goondi." As an example, the remains of a tope on the site of the ancient Nagarahara, already mentioned, they call "Nagara Goondi," which becomes in itself one of the identifications of the place.

We will give some further portions of Mr. Simpson's valuable paper in our next.

WORK OF THE SCHOOL BOARD FOR LONDON IN RELATION TO SITES AND BUILDINGS.*

ON the subject of illustrating the working of the Lands Clauses Act, I may say, perhaps, a few words, to be supplemented, as I have before expressed a hope, by other gentlemen.

Generally speaking, the contested cases have proved more favourable to the Board when fought before juries, than when argued before professional umpires. That is to say, the results have appeared to approximate more nearly to actual values, especially when the common sense of jurymen has been left undisturbed. This may appear remarkable when the well-known bias of juries against public bodies is considered, but it is the fact. I do not hold it to be conclusive as to the respective merits of the two tribunals. It points rather to the special value of the professional gentlemen, surveyors, and counsel who have aided the Board in the work, when united before a non-professional tribunal. One skilled professional umpire must, in my opinion, always form at least a safer judge than twelve men ignorant of values, and liable to be biassed by a persuasive advocate or a mistaken summing-up. Yet, whether before juries or umpires, those cases in which the element of "severance" has found a place have usually been decided with with a heavy preponderance towards the claimants. Severance is clearly an element more misunderstood than almost any other of common occurrence.

Whenever a case of any importance must be contested, it has been found the best, and even the most economical, course to appear by counsel. This whether before a jury or an umpire. The reason is obvious, for beyond knowledge of law, it is the counsel's peculiar business to put his case clearly.

One kind of case,—viz., that in which an injunction in Chancery is obtained to restrain from damage to adjoining lights,—has been before the public in connexion with the Board. As is well known to railway surveyors, an injunction will not lie against persons proceeding under an Act of Parliament, the aggrieved party having his remedy in money compensation for damage proved. Yet an *ex parte* injunction was obtained from Vice-Chancellor Malins to stop the building of the Winchester-street school because of alleged damage to the lights of an adjoining property. The injunction was of course dissolved during the next few days.

It has been usual to complain of damage to property by reason of bringing a Board-school into its midst, just as in old days all property was said to be ruined if a railway came near. The presence of a school has been actually found to increase the demand, among tenants of the more respectable sort, for the smaller kind of houses, just as the railway did.

The cases in which persons have been compensated for damage to, or destruction of, profits from business, have formed a comparatively small proportion, from the obvious reason that the Board is careful to avoid the neighbourhood of trade-claims as much as possible. There has been, among those which were unavoidable, probably the usual average of well-made-out cases, well-got-up cases, cases with no books kept, and cases with sham or falsified books. Among these last that of the Ponton-road site deserves a record, where Hayward, a dairyman, claimed 3,065*l.* compensation for loss of business, and was awarded 383*l.* His books, by himself or his agents, having been falsified to support his claim, he was prosecuted by the School Board at the Old Bailey, and was sentenced by the Recorder, on the 3rd of December last, to four months' imprisonment.

After long legal arguments, the Middlesex magistrates finally decided that the assessment must be based on an amount derivable from the interest on actual cost of land and buildings, applying four per cent. to the former and five per cent. to the latter. The amount of rate paid is therefore much more than had been expected; and a principle has been adopted which will, in all probability, have an indirect and imperfectly recognised application in the future to private buildings likewise.

In reference to those portions of the surveyor's profession which relate to buildings, the experience in London during the carrying out of the Education Act has been varied and extensive. Here we begin to part company from the Education Act and the Lands Clauses Act, and, instead, have to consider the working of the Metropolitan Buildings Act in reference to public buildings. The Building Act is found to be interpreted and administered in different ways by the respective surveyors having jurisdiction in different parts of London. The school-houses rank as public buildings under the Building Act, and are not exempt from its operation as are buildings belonging to railway companies. The district surveyor has, therefore, a discretionary power beyond the mere enforcement of the regulations framed for observance in the case of ordinary buildings, and his requirements have sometimes proved not merely a test of his knowledge of the Act, but of his acquaintance with practical and scientific building construction. Differences under this head have always been settled by arrangement, and I do not propose to quote any. Other cases should perhaps be alluded to, though limited to one of each kind.

It is sometimes asked, "What constitutes a public building within the meaning of the Act?" In reply I may confine myself to what now concerns us, by admitting that the new school-houses of the Board, at least, should properly be treated as such. In the case of the Upton House Truant School, however, the question was broadly raised by the district surveyor whether the mere fact of an occupation by a public body like the School Board had the effect of converting an old house, originally built for a private residence, into the class of public buildings, and thereby rendering conformity with the Act, in its provisions as to new buildings, imperative. The magistrate decided in the Board's favour, and the plaintiff has not seen fit to carry the case into the Court of Queen's Bench. Had the decision been otherwise, the use by the Board of temporary premises, pending the erection of new school-houses, would have become impossible.

Except that of ancient lights, perhaps no building question is more troublesome in London than that of frontage-lines. A Board armed with an Act of Parliament can get over the former by paying money for damage proved. Not so with the latter. They then have no power beyond that of private persons. If the frontage be a new one, and in a street, it must not be within 20 ft. of the crown of the road-way. But the case of the St. Stephen's Club will be in the recollection of all members, wherein it was settled, once for all, that one frontage-line did not alone constitute a "street" within the meaning of the Act. The School Board has always been so desirous to avoid any hindrance to a public improvement, and even to further such schemes, as far as its duty would allow, that few real difficulties have arisen in respect of frontage-lines. An exception occurred, however, in the case of Johanna-street School, Lambeth, where the Metropolitan Board of Works ordered the building-line of a proposed enlargement to be set back, on the ground that the street on which it abutted was not 40 ft. wide, and that a public improvement might hereafter be needed. With every desire to co-operate with the Metropolitan Board, it was felt that the school-house already erected would be most seriously affected, and that the order was *ultra vires*, from the fact that the proposed building would stand on the site of an old foundation. The order was therefore disregarded in the most formal way, and with due notice of the steps taken. The enlargement was finished several years ago, and nothing further has been heard of the matter.

One of the provisions of the Building Act (sections 22 and 30) relates to the use of non-combustible materials in the staircases, landings, and corridors of public buildings, and is manifestly directed towards securing, as far as possible, safety from fire. In the Board schools, therefore, the principal staircases, &c., are always constructed of non-combustible material. But it usually happens that a few steps are required to give access to the private rooms of the teachers, and, not being intended for use by the children of the school, have generally been made of wood. Recently, this practice was challenged in the case of the Haggerstone-road School by the district surveyor, who required the removal of the wooden staircase. The surveyor was doubtless right, technically, and it was thought that a sufficient protection would be afforded by giving an undertaking to reconstruct should it at any time be desired to devote the staircase to the use of children. The matter was thereupon heard by the Metropolitan Board of Works, who decided against the School Board. Without impugning the wisdom of the decision, I maintain that it followed the letter rather than the spirit of the Act, inasmuch as the staircase was only for the use of three or four persons, and its destruction by fire could have endangered nothing beyond itself. Yet it formed a kind of decision which the School Board would hardly have been justified in attempting to resist.

Many other points under the Building Act have arisen from time to time which it would be easy to discuss in so far as they affect public buildings. On reviewing them, however, they assume the aspect rather of passing instances than of important precedents worthy of record.

Leaving the Building Act, therefore, I now turn to the subject of the new school-houses. It is, perhaps, a necessity to the School Board to regard the expenditure on its buildings according to the outlay on each child, and thus to test everything by "cost per head." This form of calculation, however, can have no scientific value to the surveyor or architect, for it is manifest that all items over and above the mere school-room accommodation are almost the same in a building for 500 children as in one of twice the size. There is the same staircase, bell, caretaker's house, three teachers' rooms, enclosed walls, &c., in the one case as in the other. Thus, the "cost per head," which may seem very small, may really be large if the school-house be large, and *vice versâ* if it be small. "Cost per head" depends, therefore, upon the size of the school, the method of computing the accommodation, and the relative size of one department to another. Its use is to assist in arriving at averages,—never to form a standard by which to judge any single building. The true test is the cost of each cubic foot of building, provided always that the planning be compact and economical throughout. With that test, useless expense in mere adornment, whether external or internal, becomes impossible. The cost per cube foot of the new buildings proper, apart from boundary-walls, &c., has varied from 5½d. to 7¾d., and at the present moment, when prices are low, stands at 6½d.

The general allegation of extravagance on the part of the School Board may, or may not, have foundation. I am not here to discuss that aspect of the question. But when the amount of the

* By Mr. E. R. Robson. See p. 35, *ante*.

rate is associated with talk about "palatial structures," as it has been of late, perhaps a few words of explanation may expose a too common and rather mischievous fallacy. The cost of sites and buildings is defrayed out of capital account, and is spread over so long a term of years that it forms, comparatively, a small element in the rate. The expense of repairs, of maintenance in all forms, of management, of teachers' salaries, &c., all, on the contrary, fall upon the rate of the year, or, as it is called, "current account." The school rate is now 5½d. in the pound, and must soon be higher. Yet the total amount spent in everything connected with the buildings and furniture, boundary walls and adjuncts (excluding only the costs of sites), amounts but to ·9 of a penny in the pound. The sites (as already stated) have cost ·57 of a penny. Thus the real pressure on the taxpayer arises not so much from the cost of building a school as from the necessary expense of carrying on and maintaining it. Most of the schools are now built, and it is chiefly in the direction of careful organisation and simplification of all matters chargeable to current account, that economy can be observed.

In conclusion, I may, perhaps, be pardoned for venturing one step beyond the limits which I had laid down for this paper by remarking that architectural display has never formed an object in the school buildings. The only reason I had for traversing, at my own cost, Europe, the United States, and Canada, was to observe the best known arrangements for internal convenience in school buildings, with the result of saving many thosand pounds in compactness and suitability of plans. The style of architecture arose naturally from an endeavour to provide something adapted to the indigenous brick building of London, something which should avoid the dreary aspect of the workhouse, should look cheerful and school-like, should possess three points always present in good architecture,—viz., good form, good proportion, and good colour,—and which, while having its roots in the past should in reality form a new style, marking alike the schools and the School Board epoch. That ignorance should have nicknamed it the "Queen Anne style" (which it in no way resembles), and that it should have become the passing fashion for other buildings, are both causes for regret. . . . .

In the discussion which followed,

Mr. Chatfeild Clarke said that some years ago it was his privilege to serve as a member of the School Board for London, and during that time he had seen a great deal of Mr. Robson's work. It was not known to the public, as it should be known, under what great pressure a large amount of the work of the Board had been done. The public were naturally anxious to see some results of the election of the Board and of its administration of the Education Act, and pressed the first Board to commence building without waiting for statistics as to the number of children to be provided for. It was against the judgment of many members of the Board, and against that of some of its officers, that the pressure brought to bear by the public was yielded to and twenty sites were selected, almost at random, and if any mistakes had been made by the Board it was probably in respect of one or two of the schools erected on those sites. There had always, however, been great doubt in his mind whether the Board subsequently proceeded in the right way,—whether they did not err economically in their desire to keep the sites as small as possible, the ultimate outcome of such false economy being that when the schools erected on such limited sites had to be enlarged, such enlargement could only be effected at an expense greatly disproportionate to what the first outlay would otherwise have been. It was also to be desired, perhaps, that the Board should acquire sites for schools in the outlying suburbs a few years in advance of the time when the surrounding district would be wholly covered with houses. Amid the outcry against the Board, it was forgotten that the Education Department exercised a rigid control over the work of the Board in the selection of sites and the erection of schools. With regard to the powers of the district surveyors, he was sorry to say that in an Act passed last session, they had the power to require architects to deposit with them copies of plans of all public buildings, to be retained permanently by them if they chose to claim them. Now, he considered that to entail a great hardship and expense on architects and their clients, and he should like to know whether Mr. Robson, in the course of his practice, had complied with the demand. Of course temporary deposit of the plans for the inspection of the district surveyor was reasonable enough, and it was to be hoped that district surveyors generally would not insist upon compliance with the arbitrary requirement to which he had referred. In conclusion, Mr. Clarke said he must express his approbation of the devotion with Mr. Robson had applied himself to the work of the Board for many years. The public owed him a great debt of gratitude for his conscientious devotion to duty.

Mr. F. Vigers, in seconding the vote of thanks, said that the satisfactory verdicts which Mr. Robson considered the Board had obtained from juries on compensation cases could only be accounted for from the fact that they themselves being ratepayers, the money which they awarded would have to come partly out of their own pockets. Towards railway companies and other public bodies they did not show the same consideration which they seemed to evince for the School Board.

Professor Kerr, as a district surveyor, said he did not for one moment believe that the district surveyors as a body would desire to act arbitrarily in the matter of the deposit of drawings. He quite agreed with the policy of the Board as to ancient lights, and he thought that the Board had done quite right to offer resistance, in the case cited in the paper, to the confiscation of a portion of one of their building sites by the Metropolitan Board of Works for the purpose of effecting a public street improvement. However desirable it might be to improve a line of frontage, it was a radically unsound principle to take a man's land from him without compensating him, and he did not believe that such was the intention of the framers of the Building Act.

Mr. C. J. Mann said that as to the cost of the school buildings, he thought that the average of 6½d. per foot cube was very moderate.

Mr. David Young, the Assistant Surveyor to the School Board, said that as to this line of frontage question, if the Board had erred anywhere, they had been perhaps a little too much inclined to give way to the demands of local bodies in respect of public improvements.

Mr. T. S. Woolley said that, speaking both as a surveyor and as the chairman of a country School Board, he was able to say that Mr. Robson's was a very valuable paper. He was at first somewhat staggered by Mr. Robson's *dictum* as to the satisfactory results of jury verdicts in compensation cases, but Mr. Vigers had no doubt given the right explanation of that phenomenon.

The vote of thanks having been put and carried,

Mr. Robson, in replying, said that there would be difficulties in the way of acquiring sites in advance, as Mr. Chatfeild Clarke had suggested, for the owners might, and in many instances would, say, that although the land was not yet covered with buildings, it was as good as covered, and leases would be produced in support of their cases. With regard to the depositing of plans, he had been required to do so on one or two occasions, and he had done so; but he was not aware that there was any intention on the part of the District Surveyors to permanently retain the plans so deposited. In conclusion, Mr. Robson said it was only due to Mr. Young to say that he had really had the whole brunt of the work of negotiating for the sites acquired by the Board, and he had discharged his duties most satisfactorily.

The Chairman (Mr. E. Ryde), in closing the discussion, characterised compensation cases tried by juries as the greatest game of chance in the world.

Remarkable Fall of a Church Tower in Devon.—The parish church of Holy Trinity, at Milton Damerel, in the North Devon district, is an old one. Exactly at midnight last New Year's Eve a weird sound was heard in the village, together with the clashing of bells. Further investigation showed that the church tower had suddenly fallen, and that in its fall two of the bells had clashed together, and thus, just on the stroke of twelve, as the old year was dying out, it rang its own funeral knell. The tower, which, without any previous warning, fell, happily without injuring any one, is now a complete ruin.

BUILDING IMPROVEMENTS IN WATERLOO ROAD.

THE throwing open of Waterloo Bridge free to the public appears already to have given an impetus to building improvements in that hitherto neglected but central thoroughfare between the north and south of the metropolis known as Waterloo-road. In different parts of the road inferior old structures of not more than two floors are being replaced by new shops and buildings of a much more substantial character, in anticipation of the business character of the locality being improved. For the purpose of erecting a new Board School on the west side of the thoroughfare, the School Board have purchased a block of about twenty houses and shops lying between Whiting-street and Tower-street, with a number of cottages in the rear, the whole occupying an area of more than an acre in extent. This property includes some of the worst tenements in the locality, and during the present week the materials of the several houses and shops have been sold, and are now in course of being taken down in order to clear the site for the new school, which will at once be erected.

THE LATE FATALITY IN TOTTENHAM-COURT-ROAD AND THE BUILDING ACT.

IT transpired at last week's meeting of the St. Pancras Vestry that the present powers of the Metropolitan Board of Works over the erections of buildings of a dangerous character are still anything but satisfactory, notwithstanding the several enactments with which the Board are fortified. Mr. Runtz, in moving the adoption of the report of the Building Act Committee in connexion with the fall of two houses in Tottenham-court-road, on the 20th of November last, said he might mention that it had been said the surveyor had neglected his duty, but it appeared that he did all he could in the matter. The defect was in the law, as the district surveyor had no power to stop the works at a building, although alterations might be carried on in a dangerous manner. The proceedings would be entered on the minutes, in order that they might be forthcoming in any steps which the Board might take to remedy this defect in the law.

PROCEEDINGS AGAINST A WATER COMPANY.

IMPROVED INDUSTRIAL DWELLINGS CO. *v.* THE EAST LONDON WATER CO.

ON the 10th inst., at the Thames Police-court, Mr. Lushington had before him a case in which the East London Water Company were charged on fifty-six summonses for neglecting or refusing to supply the Improved Industrial Dwellings Company's premises, Morison's-buildings, Commercial-road East, with water on the 2nd of December last.

Mr. Wheeler, in opening the case for the complainants, said that the buildings to which the summonses referred were divided into two blocks, one on each side of the road. As many as thirty families resided in the north, and forty-five in the south block. There had been continual trouble in obtaining water for them, and friendly remonstrances and negotiations had been exhausted in endeavouring to get sufficient of one of the first necessaries of life. Since 1878 no fewer than thirty applications had been made to the water company, while the Local Government Board had given notice to the plaintiffs that unless water was properly supplied to the dwellings they must be declared unfit for habitation. Mr. Wheeler proceeded to show that it was the statutory duty of the defendants, by 10 & 11 Vict., chap. 17, to supply pure and wholesome water for domestic purposes, to all who should be willing to pay water-rates, even in the topmost story of the highest houses in the neighbourhood, unless there were something in the special Act which would derogate from that liability. He proved that under the 63rd section of the private Act, the highest point to which the company should be compelled to raise water was 40 ft., and also that the cisterns on the plaintiff company's premises were within that limit of height. The summonses were issued under the 43rd section of the general Act. It would be for the water company to show why they had not supplied water as they ought to have done.

Mr. William Ward Lee, the architect under whose superintendence the buildings were erected, Mr. George Borer, his assistant, and Mr. Thomas Blashill, were called as witnesses as to the height of the cisterns.

For the defence, it was pleaded that the 2nd of December was an exceptionally frosty day, and, owing to persons turning their taps on and allowing water to continuously run to waste to prevent its freezing, the full pressure of water was considerably reduced, thereby lessening its supply.

Mr. Lushington said he could not doubt that on the 2nd of December the company did not supply the north side of the buildings in Commercial-road with water. He fined the defendants 10*l*., and six guineas cost. Respecting the south side, the summonses would stand over *sine die* to see whether the company gave a sufficient supply of water to both sets of buildings.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE third ordinary meeting of this Institute for Session 1879-80, and the first after the Christmas recess, was held on Monday evening last, Mr. John Whichcord, president, in the chair.

The Secretary, Mr. W. H. White, announced the decease of Mr. C. A. Gould, Associate, and of Mr. E. W. Cooke, R.A., Honorary Associate.

The President.—I have to add to that painful announcement with regard to our late Honorary Associate, Mr. Cooke, that he has not been unmindful of the fact of his membership with us, for I have been given to understand, informally, that we shall have a reminiscence of him in the shape of a very valuable portfolio of drawings illustrative of his work in Egypt; and I am quite sure that our deep regret at his death will be accompanied by a feeling of gratitude that he has thought of us amongst his brother-artists. In Mr. Gould we lose a very rising member of our profession. He was but a recent member of our body, although he was not a very young man at the time of his death, and he little contemplated the fatality that has occurred when he joined us a few months ago.

Mr. Charles Barry.—Mr. Cooke was a very old friend of mine, and one of my painful duties was to attend his funeral on Saturday last. Since he has been identified with us he has been, unlike some of our Honorary Associates,—and, I am afraid, unlike some of our other members,—an attentive student of our "Transactions," and during the time he has associated with us, he has spoken or written to me with reference to several subjects which have engaged our attention. All those who knew him must have known the enthusiasm, the kindliness, and the earnestness with which he threw himself into the work of every body with which he identified himself,—and the Royal Institute of British Architects formed no exception to that rule with him. I am quite sure that the portfolio which we are to receive of the beautiful drawings made during his travels in Egypt and elsewhere will be one of the most valued possessions in our Library.

The Secretary also announced a large number of donations to the Library, and mentioned that the new Librarian (Mr. Alexander Beazeley) had presented a fine, well-bound copy of Canina's "Indicazione Topografica di Roma Antica, distributa nelle xiv regioni" (3rd edition, 8vo., Rome, 1841). This work was not previously in the Library of the Institute, nor was it to be found in the Library of the British Museum. Towards the Premises Improvement Fund, donations of 5*l.* by Mr. Hugh Leonard, and of 5*l.* 5*s.* by Mr. M'Kinnon, were announced. A vote of thanks to the several donors was accorded by acclamation.

The following gentlemen were balloted for and declared to be duly elected, viz.,—As *Fellows*: Mr. W. S. Varley, of Blackburn; Mr. F. W. Burwell, of Invercargill, New Zealand; Mr. W. L. Newcombe, of Newcastle-upon-Tyne; Mr. E. N. Clifton, of Leadenhall-street; and Mr. R. E. Tyler, of Caroline-street, Bedford-square. As *Associates*: Mr. F. H. Humphreys, of Luton; Mr. E. E. White, of Bedford-row; Mr. G. C. Richardson, of Shepherd's-bush; Mr. J. W. Walter, of South Molton-street; Mr. E. Egan, of Loughton; Mr. G. Edwards, of Brompton-road; Mr. G. M'Donell, of Upton; Mr. W. S. Weatherley, of Cockspur-street; Mr. W. Jacques, of Fenchurch-street; Mr. H. G. M'Lachlan, of South Kensington; Mr. F. E. Jones, of Cockspur-street; and Mr. O. C. Wylson, of Islington.

Mr. William Simpson, F.R.G.S., then read a paper on "Buddhist Architecture in the Jellalabad Valley," portions of which we print elsewhere.

In the discussion which followed,—

The President said Mr. Simpson had read a very interesting and suggestive paper, dealing with the subject in a most artistic and interesting way. He observed Mr. Fergusson in the room, and as they all knew him to be a great authority on Indian architecture, perhaps he would give them the benefit of some observations.

Mr. Fergusson said that Mr. Simpson had gone over so much ground that it was impossible, in a few moments, to follow him. His paper was certainly infinitely valuable to all those who felt any interest in the subject, for he was the first person who had described the topes in the Jellalabad valley with any fulness of detail. Masson drew some of them, but so very imperfectly that he gave no distinct idea of what their details were like. Mr. Simpson, who was an artist, had drawn them in great detail, and had brought home fragments of the architecture, which gave a very definite and clear idea what the style was. The curious feature of much of the work was its singularly Classic form,—a form apparently distinctly derived from the styles of Greece and Rome. The style of work treated of by Mr. Simpson did not extend into India itself, but only as far as the Indus, or, at most, only a few miles beyond. In India itself there was no Classic capital to be found, so far as he knew. The curious problem was how this Classic type of work came to be executed so far away as the Indus. The first suggestion, of course, was that it was a remnant of the Bactrian kingdom that Alexander left in that country; but then that kingdom expired about 160 years B.C., whereas there was no instance of a Corinthian capital or moulding being found on the banks of the Indus which did not date from at least 100 or 150 years after Christ, so leaving a gap of from 250 to 300 years to be got over. The only inference he could draw was that, during the Byzantine period, between the reigns of Constantine and Justinian, there was considerable inter-communication between East and West, of which the remains which had been treated of by Mr. Simpson afforded the only evidence we had. The character of the ornament in one of the specimens exhibited by Mr. Simpson was as like that of an ivory of Valentinian's time as it was possible to be. The style of sculpture was exactly the same, and if the specimen were put into the Vatican or Lateran Museum as an example of Byzantine sculpture of the time of Valentinian, it would pass muster unquestioned. Mr. Simpson's paper was a most valuable contribution to our knowledge on the subject, and he (Mr. Fergusson) had no doubt that it would eventually lead to the most interesting discoveries as to the connexion between the East and the West. He felt extremely grateful to Mr. Simpson for having brought the matter forward in so interesting a way.

Colonel Yule and General Maclagan having said a few words,

The Chairman, in putting a formal vote of thanks to Mr. Simpson for his paper, said the members of the Institute could not but feel grateful for a paper of such importance and novelty as they had listened to that evening. With regard to the Greek character of the fragments exhibited, it would probably occur to many present that the Corinthian detail of the fragments was of a Roman type, and so could scarcely have reached the Indus direct from Greek influence. He should add that previously to Mr. Fergusson's remarks, Professor Hayter Lewis had noticed the similarity of the detail to Byzantine work, and the inference as to the Byzantine derivation of the topes was supported by the fact that they were round structures or domes on square bases.

The vote of thanks having been carried by acclamation,

Mr. Simpson briefly replied, admitting the strong similarity of the detail to that of the Byzantine ivories.

A METALLIC WATCH-DOG.

THAT the greatest ingenuity should be displayed in the invention of machinery to economise manual labour is at once natural and creditable, but we did not anticipate that the builder of the future would be called upon to fit a mechanical watch-dog to the street-door so as to guard the house he may be required to construct. Yet such, we are assured, will be the case. The dog,—in spite of his fidelity,—may still fall the victim of the poisoned meat thrown to him by the prudent burglar. But, morally speaking, machinery is incorruptible. It may rust, it may break, but it cannot be bribed. We can take precautions against wear and tear, but we cannot guard ourselves with equal certitude against treachery. There is no knowing what bribery and corruption may not do against us, for the flesh is weak, even though the flesh be that of a dog. Most persons are aware that, by introducing a flame of gas into an open tube, whether of metal or of glass, the tube will sound; in fact, we might easily produce singing flames. The sound, of course, differs according to the size of the tube, the force of the flame, &c. Sometimes the sound is like a roar, at others, like a low moan; sometimes high, sometimes low; in fact, the greatest variety of expressions can be produced according to circumstances. But better than this has been found. There are silent speaking-tubes; that is to say, tubes that, under ordinary circumstances, do not utter a sound; but, if a door be opened, a draught is created, then the glass vibrates, and the most startling noises result. A glass of this description has been contrived in which, when a jet of gas burns, the sound of a dog barking is produced, should the street-door be opened. Thus may the house be guarded by a mechanical watch-dog!

ARCHÆOLOGICAL SOCIETIES.

British Archæological Association.—At the council meeting held on the 7th inst., Sir Francis G. M. Boileau, who had attended the examination of the Roman remains of Burgh Castle by the Congress party in August last, and which his father, Sir John Boileau, had purchased and preserved from destruction some thirty years ago, was elected a member of the Association. At the evening meeting afterwards, the hon. treasurer, Mr. Morgan, F.S.A., in the chair, Mr. Loftus Brock, F.S.A., called attention to the works of improvement in the Tower of London, many buildings of comparatively modern date having been removed from the old walls and the towers restored. These alterations have been in progress several years, and the result is that now the entire passage-way between the inner and outer walls is clear and unencumbered, the towers give the appearance of great additional strength and effect to the whole building. Part of the Norman work of the White Tower is also visible by the removal of the Armoury. Mr. Romilly Allen, C.E., read a paper on a remarkable example of early sculptured art at Kilmartin, Argyleshire, consisting of a stone cist, about 7 ft. in length by 2½ ft. in width; it was found about ten years ago, in the centre of a natural gravel mound, during some plantation trenching. The sides of the cist are built up of rough slate stones, with the great peculiarity of two of them being sculptured on the inside; the one has seven axe-heads well carved on it, and the other a rake-like cutting, giving somewhat the appearance of an Ogham inscription, as suggested by Mr. W. De Gray Birch, F.R.S.L., when commenting upon the paper afterwards. Mr. Allen, in concluding his observations, gave it as his opinion that the sculptures were pre-historic, and certainly different from anything yet discovered in Great Britain, although he admitted their similarity to some in Brittany.

Ossory.—At a meeting of the Ossory Archæological Society, held on the 8th inst., in the library of St. Kieran's College, Kilkenny, the papers read included one from the Rev. F. Comerford, on "The Priory and Parish of Killeigh."

BUILDING IMPROVEMENTS IN THE SAVOY.

NEW RESIDENTIAL CHAMBERS.

A PUBLIC company has just completed a large and ornamental block of new buildings in the Savoy, which have been erected on the site where, until recently, stood the old historical Lutheran Chapel, and a number of other buildings which were a short time ago taken down by the Duchy of Lancaster authorities. The new buildings have been erected by the "Savoy Building Company (Limited"), at an outlay of about 30,000*l.*, and are a great improvement on the old structures which they replace. Standing on the south side of the Chapel Royal and its grounds, which they immediately overlook, the buildings are 150 ft. in length and 78 ft. in height in the centre of the north or principal elevation, the east and west sides of the frontage being 60 ft. high. They are constructed of red Fareham brick, with Portland-stone dressings and ornamentation, freely introduced, more especially at the two principal entrances of the building. In addition to a lofty basement, which, at the west end more especially, rises considerably above the street level, the building contains five floors, with wide corridors running along the centre of each floor, the entire length of the building. The central portion of the north elevation, overlooking the Chapel Royal is the most prominent feature in the frontage, and projects some distance beyond the east and west sides of the frontage. At the top of

the third floor a bold projecting cornice is carried across the entire length of the frontage, and above this cornice, in the central part of the frontage, there is a range of four arched windows, around which are festoons and devices in terra cotta. These are surmounted by carved projecting oriels and a cornice, the elevation terminating by six pediment windows. Each floor of the general elevation contains a range of twelve windows, with alternate pediment and arched heads, the east and west sides of the elevation terminating with pediment dormers. At the foot of all the windows on the several floors there are balconnettes. The entrances are at the east and west sides of the north frontage, both being lofty and imposing, and uniform in their architectural features. On each side of the doorway of the respective entrances there are columns in Portland stone, the extreme width of the entrances being 11 ft., and the doorways 5 ft. The east-end entrance is surmounted by the royal arms, carved in Portland stone, whilst that at the west end is surmounted by the arms of the Savoy.

The whole of the interior, including the basement, with the exception of the top floors, is intended to be let for office and residential purposes, and for the accommodation and convenience of resident tenants, the upper floor has been fitted up for culinary and general domestic purposes, in connexion with which there is a lift from the basement, worked by a gas-engine. There is accommodation in the building for a large number of tenants, each floor containing twenty spacious rooms, which can be divided to suit the requirements of occupants. The ground-floor is thoroughly fire-proof, being securely separated from the basement by a floor constructed on Homan & Rogers's patent, consisting of concrete and rolled iron.

The architect is Mr. Edward Ellis, of Fenchurch-street, and Messrs. Colls & Sons are the contractors. The erection of the buildings has been superintended by Mr. Hutchinson, as clerk of the works.

OBITUARY.

Herr Feuerbach.—On the 4th inst. the Nuremburg magistrates were informed by telegraph from Venice that the well-known German painter, Anselm Feuerbach, had been found dead in his bed while staying there.

Mr. F. S. Cary, the son of the Rev. H. S. Cary, the translator of "Dante," died at Abinger on the 5th inst. After going through a course of artistic study in England and Italy, he succeeded Sass, who established the well-known School of Art in Bloomsbury. His mastership dates from about 1840 to 1870, and many of the painters and sculptors who, commencing their career during that period, have since become distinguished, passed through the Bloomsbury School.

Mr. J. G. G. Brown.—On Tuesday last an inquest was held in the Hall, Gray's-inn, by Mr. Danford Thomas, as to the death of Mr. John George Garden Brown, 27, nephew of the Rev. William Francis Garden, Sub-Dean of Westminster. He was an architect, and lived in chambers, at 7, South-square. On Saturday last he visited his uncle, at 67, Victoria-street, and before leaving intimated his intention of again dining with him on the following day. On Sunday, about two p.m., he entered the chambers of Mr. Hardy, situate on the floor above, and was about to take a chair, when he suddenly put his hand to the region of the heart, fell down, and died almost immediately. A *post-mortem* examination of the body showed that there was a rupture of a blood-vessel, and consequent effusion on the brain. The jury returned a verdict of "Death from natural causes."

ORNAMENTAL MATERIALS.

SIR,—If Mr. Barnes and Mr. Coffin could direct your practical readers to parties who would supply the pure white star quartz and the rose quartz, to which they allude in the *Builder* of December 27th and January 3rd, they would probably secure the introduction of those materials.

Whether the so-called pure white star quartz is a durable material for external work may, however, be questionable. Of the absolute durability of rose quartz there can, of course, be no doubt.

H. T.

DEATH OF MR. SERJEANT PARRY AND MRS. PARRY.

THE death of Mr. Serjeant Parry and of Mrs. Parry within a few hours of each other, and the narrow escape of their eldest daughter at the same time, while it has elicited from many quarters expressions of affectionate sorrow, in which we largely and sincerely participate, has not led to those inquiries, the result of surprise, which a moment's reflection forces on the mind. Mrs. Parry was in the prime of life, the Serjeant only sixty-four, the daughter a child. How was it that "congestion of the lungs," the cause of death assigned by the newspapers, should have attacked all at the same moment and carried off two of these lives? Unless we have been misinformed by one connected with the household, they have unhappily fallen victims to the want of proper attention to the drainage of the house in which they lived. In the interest of the public it is to be hoped that a full inquiry into the facts will be made, and made known; and in the meanwhile the remainder of the family should be removed. By the death of Serjeant Parry the public has lost one of the most eminent pleaders at the bar, and a kind, cultivated, and genial man.

CHANGES IN EXETER.

THE fine old High-street of the ancient city of Exeter is fast losing the individuality of character which renders it so interesting to the visitor. The ancient chapel of St. John's Hospital, founded in 1225, and converted into a scholastic establishment in Charles I.'s reign, stands at the eastern end of the High-street, and with its façade flush with the street. Under the direction of Mr. Newton, clerk of works at the new schools, this old chapel is now being demolished by a staff of labourers. Modern requirements demanding more room, the new schools are being erected outside the town, and it is said that the materials of the old chapel will be utilised in the new. A very quaint old house, having some interesting historical associations connected with it, has just been pulled down in the High-street, and the church at its side (All Hallows) has had its chancel's exterior walls stuccoed with rough-cast. Exeter, although a city of less than 50,000 inhabitants, has thirty resident architects. Its diocesan surveyor is a stonemason!

SURVEYORSHIP ITEMS.

Wiltshire.—At the Wilts Epiphany Sessions, on the 7th inst., the salary of the county surveyor was increased from 270*l.* to 290*l.* for his general duties. Gratuities were also voted to him for extra duties performed under the Highways and Locomotives (Amendment) Act.

Dorsetshire.—At the Dorset Epiphany Sessions, on the 7th inst., Mr. Hambro, chairman of the Bridge and Building Committee, read a report on the salary given to Mr. Fletcher, the surveyor of the county; he had at present 200*l.* a year, the salary of the office when it was established fifty-six years ago being 500*l.* The committee recommended that the salary be increased from 200*l.* to 300*l.* per annum, in consideration of the extra duties devolving upon him under the new Locomotives (Amendment) Act. The report was unanimously adopted.

Liverpool.—At the meeting of the Liverpool Town Council on the 7th inst., it was resolved, by twenty-six votes to twenty-three, to increase the salary of Mr. Shelmerdine, the borough surveyor, from 850*l.* to 1,000*l.* per annum. Mr. Shelmerdine was appointed at a salary of 700*l.* a year nine years ago.

Salford.—At a meeting of the Salford Town Council on the 7th inst., it was resolved that Mr. U. R. Bradshaw be appointed surveyor for the Pendleton district, under the borough engineer, at a salary of 160*l.*; and that the salary of Mr. Arthur Salmon, engineering assistant in the borough engineer's department, be increased from 132*l.* to 150*l.*

The Mansion House.—A considerable amount of work has recently been done in the way of repainting, &c., the interior of the Mansion House. The work has been carried out by the well-known firm of Messrs. Jackson & Graham, under the direction of Mr. Horace Jones, the City architect.

MASTERS AND MEN.

Wigan.—Notice has been given to the operative masons of Wigan and district that on and after February 5th the wages will be reduced from 8d. to 7½d. per hour, and that certain alterations will be made during the winter months.

York.—Six weeks ago the Master Builders' Association of this city sent a notice of reduction of ½d. in the existing rate of wages, such reduction to take effect on and after the 1st of January. Thereupon the members of the Amalgamated Society of Carpenters and Joiners, and of the General Union of Carpenters and Joiners, held a joint meeting to consider the question, and having taken into consideration the fact that a similar reduction to the one proposed had been submitted to only a year ago, and that the rate of wages in York was already lower than in most Yorkshire towns, they could not agree to the proposed reduction, but were willing to submit the question to arbitration. The master builders replied to the effect that in consequence of the depression in trade, they saw no reason to refer the matter to arbitration, and the reduction took effect. The maximum wages of joiners in York is now 6½d. per hour, without any of the advantages conferred upon the men in other towns by the existence of trade-rules giving increased remuneration for overtime, and in winter, &c. The Joiners' committee have obtained returns from nearly all the towns in Yorkshire, and find that, with one exception (that of Harrogate, where wages are the same as at York), the wages range from 7d. to 8d. per hour.

Edinburgh.—At a general meeting of the slaters of Edinburgh and Leith, held in their hall, Niddry-street, it was stated that a circular without a signature was sent to all the employers, advising a reduction of 1d. per hour in wages, but only one employer had, it was said, acted on it, and it was then agreed to withdraw his men. It was held that wages were at present at as low a rate as the state of trade warranted.

Strikes in 1879.—Mr. G. Phillips Bevan, in an interesting communication to the *Times*, says that the strikes of last year numbered 327, as against 277 in 1878, and 191 in 1877. There were 69 strikes in the building trades, viz.:—Masons, 15; carpenters and joiners, 20; building operatives, 7; slaters, 4; bricklayers, 6; plasterers, 7; plumbers, 7; and painters, 3. In the wood and stone trades the number of strikes during the same period was twelve, viz.:—Stonecutters, 3; brickmakers, 3; cabinetmakers, 3; cork-cutters, 1; lath-splitters, 1; bobbin-makers, 1. In the mining trades there were 71 strikes; in the iron and metal trades, 45; in the engineering trades, 13; in the ceramic and glass trades, 10; and in the shipbuilding trades, 13. Of the total number of 327 strikes, 16 were left as "legacies" from 1878, and in the same way the year 1879 passes on 26 quarrels to be finished in the current year. Mr. Bevan adds, "Of those strikes of which I have been able to obtain particulars of termination, 3 were won, 20 were compromised, 72 were lost, and 26 remained unsettled."

THE OPERATION OF THE ARTISANS' DWELLINGS ACT.

London.—On the 8th inst. a meeting of delegates from the London Vestries and District Boards of Works was held at the St. Martin's Vestry-hall. Mr. Watherston, who presided, said that under the Act, thirty-two schemes had been scheduled in London, of which fourteen had received the sanction of the Home Office, and six had been dealt with:—the Bedfordbury site, at a cost of 83,000*l.*; the Great Wild-street site, at a cost of 119,000*l.*; the Pear-tree-court (Clerkenwell) site, at a cost of 19,900*l.*; the Whitecross-street site, at a cost of 371,000*l.*; the Old Pye-street (Westminster) site, at a cost of 74,000*l.*; the Whitechapel site, at a cost of 66,600*l.* These were the rough figures, the total cost being 734,766*l.* After clearance, the sites were valued at 496,694*l.* But the Act forbade the sale of the property for other than artisans' dwellings. The sites might be, as many were, admirably adapted for manufactories, and but ill-adapted for the dwellings of the artisan or the poorer class; still the Metropolitan Board of Works were powerless, and the result was that these valuable sites had lately been sold to the Peabody trustees at a great loss upon their cost—the Bedfordbury site fetching 7,900*l.*; the Great

Wild-street site, 15,575*l.*; the Pear-tree-court site, 5,986*l.*; the Whitecross-street site, 34,270*l.*; the Old Pye-street site, 17,573*l.*; and the Whitechapel site, 10,000*l.*; or a total of 91,305*l.*,—a sum involving a loss of 562,061*l.*, or 30,000*l.* per annum for fifty years, to the London ratepayers. But this was not all. Property on eight other sites in London was in course of demolition, or was about to be demolished. The total loss upon the fourteen sites would not be less than a million sterling, involving an annual charge upon the London rates, for fifty years, of 55,000*l.* Even this was not all; for eighteen more sites were scheduled, involving another million. Instead of bringing an average of 10½d. per foot, the ground had been disposed of at 3d. per foot,—the full value for the class of house to be erected upon them. A committee was appointed to consider the whole subject, and to draw up a report to be presented at an adjourned meeting of this conference.

Brighton.—Several plans for the improvement of the two areas in East Brighton declared by the Town Council to be unhealthy, have, since February last, been submitted to the Sanitary Committee by the surveyor, and the Committee have recommended the Council to adopt Scheme B, and to direct the town clerk and borough surveyor to prepare the necessary details of the scheme with a view to an application for a provisional order to authorise the carrying the same into effect. The cost of carrying out the scheme is estimated at 70,132*l.*, and the scheme provides for the displaced inhabitants on new land, and seeks to improve the condemned districts by widening that part of Edward-street and the adjacent places, and by constructing on the old areas new streets of a better character.

WOOD CARVERS.

SIR,—It seems to me that no designer could have produced those singing-boys in St. Paul's. The workman must have felt what he was about. The pose and expression are simply wonderful. Though, no doubt, education purifies, it is necessary to have more than theory. Whether Gibbons was a wood or stone carver is no great matter. In either his wonderful wealth of power is equally apparent. It is a pity that the art should have been so little appreciated or encouraged since his time in England. As the last of four generations of Cockney wood-carvers I speak feelingly, being born within the sound of Bow bells. St. Paul's has a special charm in its beautiful panels and cherubs' heads, nothing to equal which can be found in all the works done of late in the City, though the best foreign talent has been employed, native ability, I suppose, not being available.

COCKNEY.

THE APPROPRIATE TREATMENT OF GRANITE IN CITY ARCHITECTURE.

SIR,—In your article on this subject you state that "the price at present charged for polished granite is unreasonably high"; and this is an undeniable fact, but it is also a fact that architects have the remedy in their own hands. For example, nine times out of ten "Aberdeen" is the granite specified to be used in buildings, and if the competition is thus limited to a small circle, what can be expected but that the prices will be proportionately high?

There are many granites equally beautiful and even-grained as the Aberdeen, which are comparatively seldom even heard of in connexion with architecture,—take for an example the Cornish granite. When this was first introduced into the market none but the coarse and rough-grained quarries had been discovered, and architects soon had to abandon its use; other granities, from various causes, shared the same fate; and at last Aberdeen granite was the only kind that maintained its position in the market; it became the "fashion," and has remained so ever since.

At a comparatively recent date, however, a fine and even-grained granite was discovered in Cornwall, and, curiously enough, the quarries (which have since been opened and developed) are situated so much nearer than the rough-grained quarries to the shipping wharfs, that the price is actually less than it used to be.

This granite, when polished, is of a lighter colour than the Aberdeen; but when "fine-axed" is so similar that, to our knowledge, builders have used Cornish granite where Aberdeen was specified, and the architects have not even noticed the difference.

It is a well-known fact that the Cornish granite is the cheapest in the London market; and if the demand were to increase, it would be still cheaper, as there are certain fixed costs that, spread over a greater supply, would lessen the price per foot considerably.

No doubt there are several other granites that do not deserve to be held in such low esteem by architects, and if they would send to the various quarries for samples and general prices, we are sure the merchants would be only too glad to give them all the information in their power. By this means architects would be able to form a fresh estimate of the value of the various sorts, and would not be reduced to base their opinions on the quality of the granites supplied twenty or thirty years ago.

THE WEST OF ENGLAND GRANITE CO.

TO BUILDING OWNERS.

SIR,—Many old buildings, not being in themselves dangerous, are frequently made so by injudicious cutting into, and attempted conversion into buildings of different, altered, character.

My object in writing is to warn the public that their safety and security lie (1) in the employment of a competent surveyor, and (2) a really competent and respectable builder; and to caution them against the belief that the district surveyor is a safeguard that may relieve them of their responsibility, both as regards the surveyor and the builder employed.

It would be most unwise to relieve the builder, really the active agent in the matter, and who goes into every particular of construction with his eyes open, of any portion of that responsibility.

Much of this has already been stated previously, but there exists a pressing necessity of further urging on the public the fallacy of believing that by any Building Act they can be protected from reckless builders and bad construction.

A SURVEYOR.

THE VENTILATION OF GAS-BURNERS.

SIR,—This is not a new cry, although it seems to be coming more to the front of late. It has been treated of by several writers. In putting in small pipes to carry off the foul air, I believe that carbonic oxide is formed within the pipe, which does no harm so long as it is carried off up the chimney or ventilating-pipe to the outer air, and none gets into the apartment; but if it does blow back into the room, &c., then the pipe does more harm than good. From the experiments I made, I consider that to use the same pipe that ventilates the room to also carry off the burnt air from small pipes led up to it, is often dangerous, as there is frequently a blow-down in the ventilating-shafts of rooms, supposing ventilators said to be first class are used.

I would here utter a word of caution against connecting all the rooms of a house into one ventilating-shaft. Supposing a patient lie in a bedroom ill of an infectious disease, disease germs might be carried through ventilating-pipes from the bedroom into the dining-room, and, falling upon the meat on the table, poison some of the company. I found this blow-down in a gentleman's dining-room and drawing-room so connected, even when the fires were off, yet he thought all was perfection!

W. P. BUCHAN.

The Frescoes at Pompeii.—Recent visitors to Pompeii write complaining that the frescoes on the walls of the excavated houses are suffering much from exposure to the elements. It is urged by one correspondent that, without a very large increase in expense, a roof might be placed on all the houses which contain frescoes; but another writer says that this course would not be entirely efficacious, on account of the damp and the sea air. He regrets that many years ago some more efficient means were not taken to preserve in Pompeii itself the frescoes, &c., that have been taken away to the museum at Naples, either by roofing the houses or by glazing the frescoes themselves; for one can hardly judge from their present state what they must have been even when Sir William Gell wrote his "Pompeiana" in 1821.

THE TAY BRIDGE.

SIR,—I noticed in last week's *Builder* you gave a short account of my report on the Tay Bridge accident. As you have only given my conclusions as to the cause of the accident, perhaps if you could spare me a little space it may be of some interest to your numerous readers to have a more descriptive account as to the design of the structure and to what I consider the defects in the design which led to the failure of the bridge.

I will not attempt to give a detailed description of the structure further than to illustrate my views; but I should like to remark that my first impression upon visiting the site of the bridge was that, judging from the remaining portions of the superstructure and piers, the whole had been made far too light and flimsy, and erroneously designed, both as regards the vertical loads to carry and the strains due to the pressure of the wind. Even the remains of the bridge as it now stands appear to be devoid of lateral stiffness, and I cannot help thinking that the strength and stability of the bridge had been sacrificed for cheapness, and, judging by the manner in which the bridge was erected, facility of erection. My own surprise is, that the whole of the bridge supported on piles did not succumb to the gale.

Before going further, I would remark that it is very singular that none of the details of the piers, and only a very general description of the bridge, have been published by any paper, or described at any institution throughout the country; and I feel sure that had more publicity been given to the general details, this lamentable accident would not have happened, as any one conversant with the strength of iron structures would have seen at once the errors in the designs, viz., the great want of lateral stability in the girders, and more especially the piers.

Beginning with the superstructure. Was there sufficient strength of wind-ties or struts to prevent the main girders from oscillating during a violent gale? Were they riveted up tight without any appreciable sag, or were they loose, thus giving them sufficient play that, under a series of short sudden blows such as the wind would subject them to, they were unable to act until the girders had a considerable amount of lateral vibration, and thus, owing to the sudden strain upon them, they broke and could not act?

In large and deep girder bridges that I have designed, if I used wind-ties of tee or angle iron I always specified that they should be riveted up while hot, so as to put an initial strain upon them, and thus ensuring their being tight and preventing the girders from oscillating. As far as I can judge, the design of the main girders has been faulty, for so great an elevation. In the first place, the cross girders were of wood, instead of iron with proper corner gussets connecting them to the main girders; and there should have been stiff corner gussets connecting the top transverse bracing to the web at intervals of about 27 ft.; also the flooring should have been placed diagonally, which would have added materially to the lateral stability of the structure. I would like to call your attention to the method adopted in erecting the main girders, which I consider worthy of notice, as it opens the question as to whether the superstructure was not subject to excessive strains during the process of the erection.

I believe the large main girders were riveted together with all their cross bracing, wind-ties, and flooring complete. Two pontoons were then floated under each end, and the structure floated to the piers; and as the tide receded, the pontoons left the structure upon the brick piers. They were then lifted gradually by means of hydraulic power in the usual way. Now, although Stephenson adopted this method for his large tubular bridge, it must be taken into consideration that he moved a girder or tube, which was, comparatively speaking, one solid homogeneous piece of iron; whereas in this bridge, there were two narrow, deep, and fragile girders connected together with light horizontal bracing. The question arises, whether, in the floating and lifting of these flexible girders, the method adopted did not strain the wind or lateral braces in a manner that seriously deteriorated their lateral stability after the girders were permanently fixed.

In work of this kind, it is impossible to lift the ends of the girders simultaneously, no matter how carefully the work is performed; and in my

opinion the girders should not have been permanently riveted together until after they had rested upon their final bearings, and then the wind-ties should have been made hot and riveted up so as to ensure an initial strain upon them and so prevent any lateral movement.

Now, as to the construction of the piers. Each pier consisted of six columns, three on each side, forming a triangle directly under the main girders; the two outside columns had a batter of 1 in 90; the four inside columns were vertical; the columns were in lengths of about 11 ft., fastened together by eight bolts 1¼ in. diameter; the distance from centre to centre of outside columns was 24 ft.; the centres of inside columns 12 ft.; the centres of columns, measuring along centre of bridge, was 12 ft. The columns were braced together at the top and bottom of each 11 ft. length by a horizontal channel iron, 6 by 2½ by ½, with diagonal bracing of flat bars 4½ in. by ½ in. The channel iron and flat bars were fastened with a bolt to a cast lug upon the column, provision being made for drawing the diagonals tight by gibs and cotters. On the top of each tier of columns was placed an angular box-girder, with the apex pointing up and down stream, no horizontal connexion being made between the two girders, which I consider one of the worst features in the design of the piers. The main girders rested midway between the three columns instead of directly over the two inside ones,—this, in my opinion, being another very weak point in the design, for the fracture of either one column would destroy the whole stability of the pier, and so cause the collapse of the bridge.

All the columns were filled with cement concrete, but I was sorry to find that several of the broken columns, instead of having cement concrete inside, were partly filled with sand, without any sign of cement. I was able to put my arm down one column for about 2 ft., and bring the loose sand out in handfuls. I may remark that the concrete was only put in the columns to prevent corrosion; but the question arises as to whether water was in the columns, and so, during the severe frost, the columns were burst by the ice inside.

I consider that, to have made the piers safe to carry the vertical loads, and to resist any side pressure, there should have been two more raking columns with a batter of at least 10 ft. each, and instead of having flat bar bracing, there should have been proper framed angle or T-iron gussets with internal bracing, the whole securely fastened to the columns either by bolts running through, or drilled and tapped into them, and not fastened by cast lugs. In high piers of this description no dependence should be placed upon cast lugs, as there might be a flaw in them, owing to shrinkage and cooling of the casting, or the men might fracture them while driving home the keys to tighten the diagonal bracing. I noticed that, in most cases, these keys were driven home, but the bars had still a draw in them of about ¼ an inch. Now is it not probable that either the lugs were broken or the bracing was slack, and that when the wind began to blow in sudden gusts it caused the piers to rock, until the lee or weather columns broke at their mid-depth, and the whole superstructure hinged itself over, which accounts for the girders lying upon their side 25 ft. away from the piers?

In my opinion, the bracing to the piers was barely sufficient to prevent the flexure of the columns under a vertical load, and was ridiculously inadequate to withstand a side pressure, or to prevent any lateral movement.

Before concluding, I should like to say that, in my opinion, the sole cause of the accident was owing to want of lateral stiffness in the superstructure and piers, and to faulty designing, and that the train had nothing to do with the fall of the bridge in any way; that the north portion, or at the highest or No. 9, measuring from the south end pier, was, previously to the train entering the large spans, already out of a straight line, or, in fact, actually going over.

To guard against such terrible accidents in future, I would suggest that Government be empowered to grant certificates of competency to the engineers entrusted with the designs of large structures in iron, and so prevent men dabbling in ironwork who have not received a thorough training, both theoretical and practical, in every branch relating to the building of iron bridges, roofs, &c.

EDWARD W. IVES.

SOME QUERIES AS TO THE TAY BRIDGE.

SIR,—Have the bench-marks on the piers of the Tay Bridge been tried by the spirit-level to ascertain whether subsidence has taken place in the foundations?

Has any of the ironwork which remained on the piers been taken with the view of testing its quality and its dimensions?

Have the working drawings of the work, *as executed*, been obtained by the Board of Inquiry?

Have the specifications been produced?

Will a rigid examination be made of the columns of the ruined iron piers, and the fitting of them; also of the girders; or is dynamite to solve the enigma?

G. R. J.

CHARITY CO-OPERATIVE STORES.

SIR,—These are private stores, opened and superintended by benevolent individuals resident in the town, for the sole and express use and benefit of the abject poor, of the aged, and of the afflicted, to enable these poor creatures to purchase (or have sent to their homes) the absolute necessaries of life at wholesale prices in retail quantities, and thus to effect a saving of about one-fourth. To accomplish this charitable object, district visitors, in their respective districts, in their weekly or other visits to the homes of the poor, would enter the orders in a book together with the moneys received, at cost prices. The goods are then either forwarded or fetched according to circumstances. A room in the residence of a district visitor would amply suffice for the charity co-operative store which could easily be started (and be self-supporting) out of small contributions of the inhabitants.

AUGUSTUS J. HARVEY.

"WHO WILL EXPLAIN?"

DIFFERENCES IN TENDERS.

SIR,—I will; and say it is the inexperience of those who estimate, forgetting that even a fraction per foot in value of depth of trench makes, when there are hundreds of lineal yards, perhaps miles, of drains and sewers, the great difference in the total amount of the drains and sewers bill; for instance:—

100 yards lineal trench digging, average 9 ft. deep, for 12-in. pipes, part return, fill in, and ram, and cart away the remainder, value *sixpence per foot in depth* of trench per lineal yard..... 4s. 6d.

I have seen this valued in priced bills of quantities as low as 2d. per foot in depth, viz., 9 ft. at 2d. = 1s. 6d.; 200 per cent. less than my value, and I can say, *for experiencia docet*, that 6d. per foot in depth of trench, taking one depth of trench with another, including all strutting and shoring, is only a fair value, as a rule; although, of course, no rule is without an exception, and my experience dates back twenty years, when I prepared block plans to be lodged with the Kensington Vestry showing drains for the Holland Estate (Holland Villas-road and Addison-gardens), and looked on whilst the pipes were being laid and the drainage completed.

Again, *prices* by those to whom estimating is not an every-day occurrence are often copied from former estimates, and as one quantity surveyor will take off his drain pipes, joined in clay or cement as the case may be, *with his trench digging*, in copying prices the same figure is often put down per lineal yard as for the trench digging alone. Another surveyor will ball the trenches and drain-pipes per lineal feet and not yards, but the same figure in copying prices has been put down against the feet as for the yards in a previous estimate. Even by contractors themselves mistakes like these are often made when copying prices and not valuing the work. Let them employ a surveyor experienced in estimating or valuing work, who for a few guineas, as the case may be, will "frame their estimate," and it will not be "dragged up." I could, in the same way, point out mistakes in pricing the making of roads and paths, from the formation level of the road to the top of the metalling, but feel I must not trespass upon the road or your valuable space except in reply. TOM.

THE HULL BOROUGH ASYLUM COMPETITION.

SIR,—I was much interested by the contents of a letter from "F.R.I.B.A." in your last issue, and, for his information, and those interested in the above competition, I will mention the following circumstance, which I did not take much notice of at the time, but it has, nevertheless, turned out in reality as was predicted. A medical gentleman in Hull informed me in July last that a Hull architect had been employed for a long time getting out plans for the new Asylum, and that he had visited almost every existing asylum in Great Britain, and had the advantage of every requirement from the late medical superintendent, and that he would undoubtedly have the Asylum to carry out.

Some six or seven years of the time of professional gentlemen (adding them together) seem to be thrown away in a useless competition. Whose interests are the committees working for? They ought to be the ratepayers'. Will the Lunacy Commissioners sanction an expenditure of 56,000*l.* for a small asylum to accommodate 400 patients? Are they not going to expend over 20,000*l.* needlessly?

I can only endorse the opinion of "F.R.I.B.A.," that the whole of the plans should again be properly judged, and those plans which come nearest to the requirements of the conditions issued by the committee should be adopted.

Comment is needless, it will only occupy space, which I hope I am not trespassing upon. "NOVUS HOMO."

STAINES TOWN HALL COMPETITION.

SIR,—As one of those foolish persons who were induced to go to the expense and trouble of sending in plans for the proposed Town-hall, Staines, I fully agree with the remarks made by your correspondent in your impression of last week, and have to express my surprise at the information he gives, which is new to me and, no doubt, to many others, for, although one of the unfortunates, I have heard nothing as to the doings of the wise men of Staines in this matter, beyond what was conveyed in a circular I received, that a certain design had been selected, with the cool intimation that it could be seen by the competitors up to a certain date, an invitation I look upon as a piece of impertinence, adding insult to injury.

The circumstances stated by your correspondent as to the mode adopted in making the selection is manifestly unfair in principle, makes the matter worse, and I much question whether it could be sustained were steps taken to test its legality. That there has been a breach of faith there cannot be a doubt, if not of something worse.

I, for one, shall be willing to aid in the matter in clearing up what I deem a public scandal, which no means should be spared in showing up, in the hope that it may do some good in the law regulating public competitions. It seems to me that this is a case the Institute might very fairly take up, and I am sure there is no member of the profession who would withhold his aid, be it ever so small, in providing a fund to defray the cost incurred in trying the case, by taking the advice of counsel in the matter. I enclose my card.

W. S.

LIGHT CASE.

BELL *v.* SAILLARD.

IN this case, tried in the Chancery Division, before Mr. Justice Fry, the plaintiff was a leather merchant in Cow-cross-street; the defendant was the owner of three houses on the opposite side of the street, which have been recently rebuilt. The plaintiff alleged that the alteration in the defendant's houses had occasioned a diminution of the quantity of light coming to his premises and thereby materially injured them, and brought this action for damages.

Mr. Justice Fry, in giving judgment, considered the evidence as dividing itself into three classes. Under the first head there was little conflict. It appeared that the parapet of the house opposite the plaintiff's had been raised 4 ft., the next house some 10 ft., and the next, more to the south, about 15 ft. Upon the next head of evidence, he was of opinion that the sky area, as seen from the plaintiff's counter, had been diminished, and, looking at the fact that the sky area visible was small, the diminution was material. Upon the third head of evidence, he thought the letting value of the premises had been diminished and the business of the plaintiff had been to some extent damaged. A great part in the falling off of business was probably due to the general depression of trade and other causes than the diminution of light, but there was evidence of customers of the plaintiff, having no cause of enmity against him, having gone to other places for their goods because they found in buying from the plaintiff they could not so well depend on seeing defects in the goods as before. He was therefore of opinion that the plaintiff had made out a case for damages, and, weighing the evidence as a whole, he awarded 120*l.* as damages, and gave judgment for that amount and costs.

SEWERAGE AND DRAINAGE WORKS.

Plymouth.—A discussion affecting the plans prepared by Mr. Appleton, C.E., of Torquay, for the sewerage of Northern Plymouth, took place at the meeting of the Cattewater Harbour Commissioners on the 5th inst., the executive committee reported as follows:—

"In accordance with a resolution passed at your last meeting, your committee have considered the application of the Plympton St. Mary Rural Sanitary Authority, and examined its plans for an outfall sewer at Port Quay, Laira, and have heard Mr. Appleton, the engineer, thereon, and have instructed your clerk to report to the Board of Trade, in reply to their letter requesting observations thereon, that the proposed drainage would be very injurious to the harbour unless sufficient catchpits and provisions for the filtration of the sewage are made, to be approved of by your engineer, to prevent deposits and the pollution of the stream, with power for your Board to clear all catchpits and filtering works and deposits at their outlet at all times when required, and to charge the cost to the Sanitary Authority."

Burslem. — The Burslem Sewage works, where, it is stated, the sewage is pumped to a greater height than anywhere else in this country, were officially opened by the mayor, Mr. James Maddock, on the 16th ult. Nearly twenty years ago a system of main drainage and arterial sewers was carried out in Burslem, by which the generality of the streets and thoroughfares were drained with brick and stoneware pipe sewers. Since the passing of the several Acts of Parliament relating to the purification of sewage, and more especially the Rivers Pollution Bill, Urban and Rural Authorities are compelled by law to "purify" their sewage before passing into any stream or river. Acting under a threatened injunction from the Duke of Sutherland, and to avoid costly litigation, the Burslem Local Board, in 1875, instructed their surveyor, Mr. E. M. Richards, to prepare several alternate schemes for the disposal of the sewage. He prepared four different schemes for the consideration of the Board, viz.,

two irrigation schemes: the one adopted being that by which the sewage is pumped upon the high lands at Bradwell. The sewage is intercepted at different points, and conveyed by gravitation to the lower part of Longport Valley, by means of two intercepting sewers, the high-level sewer passing over the Fowlea Brook, and the low-level sewer passing under the Brook, opposite the pumping station, and thence into the tank or suction-well. The sewage, when it reaches the suction-well, is forced up a cast-iron rising main two miles long, and 21 in. diameter, to different points varying in height from 200 ft. to 250 ft., whence it will gravitate over the Corporation Farm, at Bradwell, of 314 acres area. The cost of the works will not exceed the engineer's estimate of 25,000*l*. The whole of the works were designed and carried out under the immediate direction of Mr. Richards. Mr. William Barker, of Kidsgrove, was the contractor for the engines, pumps, and boilers; Messrs. H. & R. Inskip, of Longton, for the engine-house, &c.; Mr. John MacKay, for the rising main and intercepting sewer, &c.; Messrs. Drewitt & Pickering, for the storage reservoir; and Messrs. C. E. Firmstone Bros. supplied the cast-iron pipes for the rising main.

CHURCH-BUILDING NEWS.

Atherton (Manchester).—The new parish church of Atherton has been consecrated by the Bishop of Manchester. The architects are Messrs. Paley & Austin, of Lancaster, and the style chosen is Late Decorated. The building will, when finished, cost about 20,000*l*.; but at present only 10,000*l*. have been expended, and that upon parts most needed for immediate use. When complete, the nave will be 137 ft. long, and the chancel 45 ft. long by 28 ft. wide. The roofs are of pitch-pine, open timbered. Mr. Winnard was the contractor, and Mr. E. Potts was clerk of works. The font is executed from a single block of alabaster, and was supplied by Mr. Roddis, of Birmingham.

Hanwell.—A new neighbourhood having sprung up some distance from the old parish church, a new church, dedicated to St. Mark, has been erected to provide for the increased population. The architect is Mr. William White, F.S.A., Mr. Thos. Gregory, of Clapham, being the contractor for the whole of the works. The church was commenced about a year ago, the first contract comprising the chancel, transept, and one bay of the nave; but during the progress of this contract, the Building Committee were enabled to proceed with the vestry, and the second bay of the nave and aisles, then the third, and, finally, the fourth bay, which completes the church, except the south porch and tower and spire. The church is built of stock bricks, with red brick quoins and specially moulded arches and jambs. The shafts of columns are of Bristol Pennant stone, with Bath stone for caps, bases, and window tracery. The floor of the chancel is paved with tiles; but the whole of the nave, aisles, vestry, &c., with wood blocks laid herring-bone fashion. The church was consecrated on the 31st ult.

Haworth.—The foundation-stone of Haworth new church was laid on the 18th ult. Not a vestige of the old church now remains, with the exception of the tower. The new church, which is to be built by Messrs. Crabtree Bros., Oxenhope, from the designs of Messrs. T. H. & F. Healey, is to be in the Perpendicular style of architecture, will comprise nave, side aisles, chancel, north and south chapels, and a vestry. The internal dimensions will be,—nave, 77 ft. by 22 ft., with a height of 42 ft. to the ridge; chancel, 30 ft. by 21 ft., and 37 ft. in height; side aisles, each 63 ft. by 13 ft.; north and south chapels, 21 ft. by 14 ft. each. The east window will have six lights and the west window five lights of stained glass, with elaborate tracery. The total cost will be between 8,000*l*. and 10,000*l*.

Newton Heath.—On the 20th ult. All Saints' Church, Newton Heath, was re-opened for service, after alterations which have involved the entire remodelling of the interior. At the east end there have been erected a new chancel, choir and clergy vestries, and organ-chamber, the total cost of which has amounted to 3,400*l*., and has been defrayed by Mr. John Taylor, Brookdale. At the west end a baptistery and porches have been erected. The work has been executed from the designs and under the superintendence of Mr. H. Lord, architect, Manchester.

Books.

Pottery and Porcelain: a Guide to Collectors. By FREDERICK LITCHFIELD. Bickers & Sons. London: 1879.

THIS is a small book intended mainly as a guide to collectors, to put before them in a comparatively cheap and condensed form, information which is at present accessible only in rather costly books. The value of such an addition to the literature of china-collecting depends partly on how far the taste for and practice of collecting are spreading among people of small means. Your collector is usually a man of wealth, who does not grudge a good price for the best book he can get that will assist him in the indulgence of his taste with safety and with credit to himself. If, however, people with small bankers' balances wish to indulge so expensive a taste as collecting, here is a book, small in size, in which they may find very full information in regard to the marks or brands of various classes of works, accompanied by short descriptions of the style of the work which characterises the pottery productions that rightfully bear such marks. If, however, various publications lately have assisted to acquaintance with marks on the part of purchasers, it must be remembered that the information thus eliminated has been equally available for venders of all classes, dishonourable as well as honourable, and that nothing can be easier than to fabricate marks so as to deceive, if it were possible, the very elect of collectors, if the latter trusted entirely to marks. Of course, an experienced collector does not; he distinguishes between one manufacture and another, of genuine work, by the knowledge of style and colouring which he has acquired by long acquaintance with his subject, and similarly between genuine work and forgeries. There is, we fear, no royal road to judgment in collecting, and if it is once established that there is a class of customers who judge the value of the work mainly by the marks, there will be a fair field for unscrupulous fabricators.

It is, however, of course useful, even necessary, to any one who is desirous to shine as a collector, to know the trade-marks, if he is not tempted into trusting entirely to them. It should be added that Mr. Litchfield's book contains more than the mere practical information as to marks; he gives a brief but readable *resumé* of the history of the art and of the most distinguished producers in it, with occasional critical remarks, which are suggestive and usually well-considered. His remarks in regard to "the rage for Japanese art," on page 45, require, however, some little modification. So far as it concerns the introduction of figure subjects in Japanese style, we entirely agree with him that such a taste tends to "threaten the purity of our designs." But this is not the case in regard to the birds and animals of the Japanese work, which are mostly exceedingly fine, and far superior in artistic force to anything of the same kind in English or French pottery design. In regard to merely ornamental pottery design, Japanese work, as we have not unfrequently urged, has been over-rated; its novelty and piquancy of style, when it first became popular in England, attracted a very natural admiration, and its fine colour properties are incontestable; but it wants the refinement of feeling and æsthetic which characterises the highest and most intellectual form of ornamental design.

VARIORUM.

"SLEEP and Sleeplessness," by J. Mortimer Granville, may be usefully studied by all hard workers; and what is more, they should attend to what they will find therein set forth. Want of sleep is the beginning of many troubles.——"Primer of the Industrial Geography of Great Britain and Ireland," by G. Phillips Bevan (W. Swan Sonnenschein & Allen), is one of a series of little books intended to assist in embodying into our educational system some acquaintance with the industrial condition of the various countries of the world. Mr. G. P. Bevan is well known as having given much attention to the subject. It seems somewhat slight, but possibly more elaboration would repel.——Dickens's "Dictionary of the Thames, from Oxford to the Nore," is interesting and useful. It gives much practical information, especially to anglers and oarsmen, and is full of maps. But why should Fulham and Ham be omitted?——"The Cosmopolitan Masonic Calendar and Diary" (Geo. Kenning), gives particulars of every Grand Masonic Body throughout the globe.——"The Naval Architect's and Shipbuilder's Pocket-book" (Crosby Lockwood & Co.) contains many useful tables.——Messrs. Collingridge issue as usual their "City Diary, 1880," and make it a handy Guide to the local government of the city of London.——The "Fifty-four Hour Wages Reckoner" (Johnstone, Hunter, & Co., Edinburgh) contains computations per week and per hour for fourteen working days. It includes a supplemental table applicable to weeks of fewer or more hours.

Miscellanea.

The Windsor and Eton Albert Institute, opened by the Prince of Wales on Saturday last, has been erected from the designs and under the superintendence of Messrs. H. F. Bacon & E. Ingress Bell, architects. The building is the new home of the Windsor and Eton Mechanics' Institute, and comprises a large hall, suitable for public meetings, lectures, and entertainments; a library, reading-rooms for ladies as well as for gentlemen, a museum, art and science class-rooms, and other apartments requisite for the purposes of an institution of the kind. It has a frontage of about 70 ft. towards Sheet-street, and consists of three stories. It is built of red brick, with stone dressings, mullions, &c., and is covered with a brownish red plain tile. The whole work is most substantial, and the style is the Late Tudor, so freely found in the neighbourhood in the old buildings, and notably at Eton College. The carving with which it is intended to relieve some of the plainer surfaces and mouldings has been omitted for the present. The main entrance is in the centre of the façade, and over it, niched in the centre of a projecting oriel, a marble statue of the late Prince Consort is designed to stand, thus connecting the Institute with the memory of his Royal Highness. The statue is now being executed in Rome, in the studio of Signor Romanelli, and is the gift of Mrs. Richardson-Gardner. Mr. Henri, the manager of the Windsor tapestry works, has generously undertaken the decoration of the ladies' reading-room, and has further promised a subject for the embellishment of the large hall and staircase from the Windsor looms. The works have been carried out by Mr. Woodbridge, builder, Maidenhead, under the personal superintendence of the architects, and the cost has been about 6,000*l*.

The "Inner Circle" Railway Completion.—At the meeting of the Metropolitan Board of Works, on the 9th inst., the Works and General Purposes Committee reported on the references by the Board authorising the committee to confer with the Metropolitan and Metropolitan District Railway Companies, and the Corporation of London and the Commissioners of Sewers, on the subject of the Metropolitan and District Railways (City Lines and Extensions) Act, 1879, and recommended that the Board should contribute a sum not exceeding 500,000*l*. towards the street-widenings and the new street authorised by the Act, subject to the whole line of thoroughfare being made not less than 60 ft. in width, and to the formation of the roadways and footpaths being previously approved by the Board, and upon condition that such contribution shall not be payable by the Board until the widenings and new streets, and the sewers and works connected therewith, had been completed to their satisfaction, and thrown open to the public. An amendment to limit the contribution to 400,000*l*. was negatived by 22 to 15, and the Committee's report was adopted.

A Dramatic Academy.—In response to a circular issued by Professor Morley and Mr. H. J. Byron, a number of actors and other gentlemen interested in the drama met on Tuesday afternoon to consider the feasibility of instituting a Royal Dramatic Academy. After a considerable amount of desultory discussion, two motions were ultimately carried, the first affirming the desirability of establishing a National Dramatic Academy, and the second nominating a committee, consisting of Messrs. Hare, Ryder, Byron, Vezin, and Neville, with power to add to their number, who should draw up a scheme embodied in a series of resolutions to be submitted to the profession at as early a date as convenient.

The Tay Bridge.—It is stated that Mr. John Waddell has obtained the contract for the raising of the sunken girders, and that a great deal of discretion as to blasting has been left to him and to those who may superintend the work, a general instruction having been given that the girders shall not be broken up more than is found necessary. This discretionary power to resort to blasting is also subject, we presume, to the consent of the Board of Trade, who, by their representatives at the recent inquiry in Dundee, expressly stipulated that blasting operations should not be commenced without the sanction of the Board. At a meeting of the Dundee Harbour Trustees on Monday afternoon last, Provost Brownlee, who presided, explained that he had called the meeting because there was a proposal on the part of the North British Railway Company to ask Parliament to suspend the standing orders to enable them to introduce a Bill next Session for the reconstruction of the bridge. Plans of the proposed reconstruction had been drawn; and, so far as he could make out from a description of them given by Mr. Waddell, it was proposed to build the fallen piers of brick up to the height of the underside of the girders which are standing on each side; that the spans be bowstring girders; that the rails run 17 ft. above the lower boom; and that all the piers be stayed by malleable iron stays fixed to malleable iron piles on either side of the bridge. After some conversation, a resolution, in which the Trustees expressed "their earnest hope that the directors of the North British Railway Company would without delay proceed to take steps for the reconstruction of the bridge with a double line of rails," and in which they stated that "the Harbour Trustees would be prepared to consider favourably a plan for its reconstruction at a considerably lower level than the present," was unanimously agreed to.——It would seem that the Rev. Dr. Begg, in referring to the recent Tay Bridge disaster from the pulpit, quoted from Isaiah ix. 10, the following:—"The bricks have fallen down, but we will build with hewn stones." This has provoked the following letter to the *Scotsman* from the manufacturer whose bricks were employed in the destroyed structure:—

"From the official inspection by the members of the court attending the inquiry, and such authorities as Mr. Gilkes, Mr. Waddell, and Mr. Wilson, the brickwork was ascertained to be perfectly intact in every pier, but on four of the piers the *stone* coping was found to be a good deal damaged. In the case of the ninth pier, the heavy masses of stone have been strewn about as if they had been sticks."

A Memorial of Sir Rowland Hill.—Now that there seems to be, at last, some prospect of the completion of the "Inner Circle" Railway, together with the formation of a new street, 60 ft. wide, from Eastcheap to Fenchurch-street, we would urge that the new street, when made should be named "Rowland Hill-street." The thoroughfare will traverse some of the busiest commercial centres of the City, and will, we take it, be a second "Queen Victoria-street." It will be far better to associate the name of the great postal reformer with such a thoroughfare than to relegate it to some third-rate street in one of our suburbs.——In regard to that larger and more tangible memorial of the founder of the penny post, which is to take the shape of a "Rowland Hill Benevolent Fund," the Lord Mayor, Sir Francis Truscott, has issued a circular, in which, after recalling the fact that Saturday last, the 10th inst., was the fortieth anniversary of the introduction of the penny post, he urges the claims of the memorial fund on the community at large, and adds,—"I am informed that if but a single penny were given by every one in the kingdom, the large and ample sum of 130,000*l.* would be realised." We trust that, by the co-operation of all, the fund will become a worthy memorial of him whose name it bears, and a material boon to that deserving class, the Post Office *employés* and their families.

Ecclesiastical Art-Exhibition.—A meeting was held on January 14, at 267, Strand, when the resolution passed at a meeting held in July last (at the offices of the Royal Commissioners of the Exhibition for 1851) was unanimously confirmed, that it was highly desirable to hold such an exhibition in London during May and June this year. Another resolution was carried that a building should be erected for the purpose on a site near Charing-cross, and Mr. John P. Seddon was commissioned to prepare plans for the purpose, the necessary capital, it was stated, having been subscribed.

Assyrian and Babylonian Research.—At a meeting of the Society of Biblical Archæology on the 6th inst., Mr. Arthur Cates read an interesting communication, giving an account of the "Monuments and Inscriptions on the Rocks of the Nahr-el-Kelb River in Syria," from Mr. W. St. Chad Boscawen, who is now travelling in that country for the purpose of archæological explorations. The paper was the result of two excursions, made on the 25th of September and the 1st of October last, to the rocky pass of the Nahr-el-Kelb, or Dog River, the Lycus of the classical geographers, where it falls into that part of the Mediterranean called St. George's Bay, as being the traditional scene of the English champion's fight with the dragon, whose blood still stains the ferruginous rills which flow into the Bay of Beyrout. Mr. Boscawen described in great detail the journey of seven miles from that important Syrian town which brought him to the open-air museum to which Egyptian and Assyrian conquerors contributed so many centuries ago their triumphal inscribed slabs, and sometimes their statues as well. A minute account was given by the writer of the position, shape, size, and present state of preservation of the tablets, some notice being taken of the description given by earlier explorers.——We note that on Monday, February 2, Mr. Hormuzd Rassam is to read a paper before the members of the Victoria (Philosophical) Institute on "Late Assyrian and Babylonian Research."

Messrs. Chapman & Hall.—It is proposed to convert this, now a private firm, into a Limited Liability Company. This was registered last week. Several authors and gentlemen connected with literature are among the signatories to the deed of registration, including Mr. Anthony Trollope. The capital of the newly-formed company is 150,000*l.* (in 7,500 shares of 20*l.* each). The object of the undertaking is stated to be to carry into effect an agreement between Mr. Frederick Chapman and Sir Herbert Bruce Stratford for the purchase of the business now conducted by Mr. Chapman, under the name of Chapman & Hall, and to continue the business of wholesale and retail publishers in all its branches. A correspondent who has addressed to us a somewhat violent letter, warning the public, as he puts it, "against meddling with such a speculation at such a price," is probably not aware of the magnitude of the firm's operations. The profits for some time past, we understand, have been over 14,000*l.* a year. The copyrights in the works of the late Charles Dickens, which belong to the firm, are of themselves a fortune.

The Firm of William Lawrence & Sons, Lambeth, "have" (says the London correspondent of the *Liverpool Post*) "just done a thing which is, I think, unique in its practical reward of old and valued service. These gentlemen have presented their nine managers and clerks with the goodwill of the business carried on by them for many years at Pitfield Wharf, Waterloo Bridge. This they have done very fittingly with the opening of the new year, and upon most liberal terms, considering the eminently successful traditions of the business transacted by the firm. The nine gentlemen, one of whom had been connected with Messrs. Lawrence for forty years, are associated together in partnership, under the style of Hall, Bedall, & Co. Their shares in the new firm are regulated by their standing in the old one."

Gay & Co.'s "Impenetrable" Paint.—Messrs. Gay & Co.'s paint has now been used for some years by the Government for their principal work. It is used, too, on the wood and metal work of the hot-houses in Kew-gardens, and on all the pillar letter-boxes. It dries in two or three hours with a bright enamel face, and requires no varnishing. It certainly is very bright and clean in appearance, and has great covering power.

Free Lectures at Liverpool.—The inaugural free lecture of the fifteenth winter courses, under the auspices of the Library, Museum, and Arts Committee of the Liverpool Town Council, was delivered on the 5th inst. at the Lecture Hall, William Brown-street, by Mr. J. Picton, who took for his subject the "History of the English Coinage."

"Art in the Conservatory and Greenhouse."—This is the title of a paper read before the members of the Leeds Architectural Association, on Thursday, the 15th inst., by Mr. Maurice B. Adams, of London.

The Water Supply of London.—With reference to the proposed purchase of the London water companies, it will be remembered that in the course of the debate initiated by Mr. Fawcett in the House of Commons in August last, the Government declared, by the mouth of Mr. Cross, that in taking over the stocks of the London water companies speculative changes of price would not have the smallest weight with them. The stocks would be taken as they stood on the last day of the last half-year, when unaffected by the influence of Ministerial declarations. By way of comment, the *Times* adds the prices of the principal stocks as they stood before the declaration of Mr. Cross and as they stand at the last quotation:—

Companies.	July 20.	Jan. 10.
Chelsea	153½	187½
East London	163½	194½
Grand Junction	87½	116½
Kent	210	245
Lambeth	157½	187½
Southwark	130½	185
West Middlesex	145½	174½

We see here an average increase of more than 30 per cent. on the quotations; in the case of the Southwark Company of nearly 55 per cent.

Liverpool Architectural Society.—The fifth meeting of the thirty-second session of the Architectural Society was held on the 7th inst., at the Royal Institution, Colquitt-street; the president (Mr. Henry Sumners) in the chair. A description of Boyle's patent air-pump ventilator, illustrated by working models, was given by Mr. Gibbs, of the firm of Messrs. John Gibbs & Son. The president remarked that he had used several of these ventilators, and had found them efficacious. The thanks of the society were accorded to Mr. Gibbs.

Technical Education.—Sir J. C. Lawrence, bart., M.P., has consented to distribute the prizes awarded by the Science and Art Department to the students of the London and Suburban Science and Art Classes of St. Pancras, Stepney, Southwark, Greenwich, Nine Elms, and Walworth Science Classes, under the direction of Mr. Parton Parry. The distribution will take place at the London and South-Western Railway Institute, Brunswick House, Wandsworth-road, on the 23rd inst., at eight o'clock.

The Worship of Crime.—A sort of lamentation is being made over the approaching destruction of an ancient tenement in White Lion-court, Wych-street, once the Bunch of Grapes public-house, where Jack Sheppard was seized previous to his execution. All that we have to say is, the sooner it is removed the better. The false light thrown over the memory of this unmitigated scoundrel is discreditable. Famous and infamous mean the same thing to some minds.

Manchester Architectural Association.—At a meeting of the Manchester Architectural Association held December 23rd, a paper on "House Drainage" was read by Mr. John Newton, C.E. (of the firm late Cawley & Newton). The subject was treated under the heads of,—(1) The Purpose and Mode of Construction; (2) the Trapping and Ventilation of Drains.

Mrs. E. M. Ward's Art-Classes.—We have already mentioned the establishment of art-classes for ladies, by Mrs. E. M. Ward, at 6, William-street, Lowndes-square, and are glad to find the advantages offered appear to be appreciated. The new term is now commencing. Mr. Tadema and Mr. Calderon were the last visitors, and Mr. Millais, Mr. Hook, and Mr. Frith will act for the spring term.

Marazion Drainage.—The drainage of Marazion was reported on at a meeting of the Penzance Rural Sanitary Authority on Thursday. The Marazion Parochial Committee recommended that of the nine plans submitted to them, that marked "C. E." should be adopted, the cost being 938*l.* The Board accepted the recommendation. The successful competitor is Mr. J. W. L. Rule, of Dawlish.

Bermondsey Vestry Hall.—At the meeting of the Bermondsey Vestry on the 5th inst., the clerk reported that the completion of the purchase of the site of the new vestry-hall had been effected.

Iron Fountain.—Messrs. W. T. Allen & Co., of Somerset-buildings, Upper Thames-street, supplied the castings for the fountain lately presented by Mr. Israel Hart to the town of Leicester.

Lectures on Architecture.—At the Royal Institution, Albemarle-street, on Thursday, the 15th inst., Mr. H. Heathcote Statham gave the first of a course of two lectures on "Modern Architecture since the Renaissance." Here is an outline of it:—Effect of the Italian Renaissance upon Architecture.—Radical Change in the Nature and Objects of Architectural Design.—No longer the unconscious working out of Problems in Plan and Construction, but the conscious Effort to Reproduce the Beauties of Classical Architecture, or to form the Old Materials into New Combinations.—Architecture no longer a National but an Individual Art, a Building being recognised as representing the special Taste and Genius of an Individual Artist.—Some eminent Italian Architects.—The Three Great Renaissance Domes of Florence, Rome, and London.—The Domestic Architecture of the Renaissance in Italy.—Its Characteristics in France, the North of Europe, and England.—Wren and other English Architects.—The Queen Anne Style. The second lecture will be delivered on the 22nd inst.

TENDERS

For the erection of New Schools at Farrance-street, Tower Hamlets. Mr. E. R. Robson, architect. Quantities by Messrs. Northcroft, Son, & Neighbour:—

Brass	£11,397	0	0
Sargeant	10,960	0	0
Atherton & Latta	10,900	0	0
Scrivener & Co.	10,784	0	0
Wall Brothers	10,635	0	0
Tongue	10,558	0	0
Lawrence	10,550	0	0
Cox	10,439	0	0
Grover	10,372	0	0
Hook & Oldrey	10,100	0	0
Sheffield & Prebble	9,873	0	0

For re-building the Red Lion, Union-street, for Messrs. Truman, Hanbury, & Buxton. Mr. W. E. Williams, architect:—

Marr (accepted)	£2,234	0	0

For bar-fittings at the Bee Hive, Crawford-street, for Mr. Plumridge.

Marr (accepted)	£518	0	0

For erecting and completing four ten-horse stables at the Cardiff Tramway Depôt, for the Provincial Tramways' Company (Limited). Messrs. Davis & Emanuel, architects. Quantities supplied by Mr. H. B. Foster:—

Jones Brothers	£935	0	0
Lock	920	0	0
Price	906	0	0
Linton	850	0	0
Brock & Bruce	838	0	0
Krauss (accepted)	792	0	0

For new premises, King's-road Corner, Reading, for Mr. John Adnams. Messrs. Brown & Albury, architects:—

Kingerlee (accepted)	£1,580	0	0

For new premises, High-street, Reading, for Mr. E. Jackson. Messrs. Brown & Albury, architects:—

Kingerlee (accepted)	£1,490	0	0

For re-flooring Thaxted Church. Mr. Clarke, architect:—

Grout	£624	0	0
Davies	608	0	0
Ratcliff (accepted)	573	0	0

For reinstating carcass of No. 312, Cable-street, Shadwell. Mr. Richard Peters, architect:—

Taylor (accepted)	£224	0	0
Young	216	0	0
Watson & Dunnett	214	0	0

For alterations to the Little Coach and Horses, Holborn. Messrs. Tarring & Wilkinson, architects:—

G. & H. Bywater	£508	0	0
Langridge & Sons (accepted)	479	0	0
Beer-engines.			
Warne (accepted)	45	0	0

For alterations at the Golden Heart, Commercial-street, for Messrs. Cakebread.

Marr (accepted)	£510	0	0

For alterations and repairs to Hoxton Music Hall. Messrs. Cooper & Goulding, architects:—

Thomas & Buckland	£698	0	0
Ellis & Edmondston	689	0	0
Brown	683	0	0
Sawyer (accepted)	670	0	0

For the erection of five houses in Hollingdean-road, Brighton, for Messrs. Teucher & Son. Mr. J. Dallimore, architect:—

Newnham	£1,957	0	0
Howard	1,883	0	0
Barnes	1,810	0	0

TO CORRESPONDENTS.

S. W. L. (173 ft. of 14 in. work is the standard rod, and this contains 366 ft. cube, of which Mr. Alfred speaks in comparing it with Chinese work).—J. G. (thanks).—F. (shall be considered).—A. L. G.—E. O.—T. S. W.—E. E. R.—A Surveyor.—W. E. A.—E. P. S.—C. S.—F. R.—G. A.—H. P. F.—J. D.—J. W. R.—S. M. & Co.—O. E. R.—J. W. & Sons.—R. P.—R. W. L.—T. C.—G. H.—M. R.—W. H.—J. & T. T.—J. F.—H. H.—W. G.—J. S.—R. M.—R. & A.—E. & S.

All statements of facts, lists of tenders, &c. must be accompanied by the name and address of the sender, not necessarily for publication.

We are compelled to decline pointing out books and giving addresses.

NOTE.—The responsibility of signed articles and papers read at public meetings rests, of course, with the authors.

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